

Plan of Operations Palmer Exploration Project Haines, Alaska

Phase I - Surface Construction Upland Mining Lease No. 9100759

Prepared for:
Alaska Mental Health Trust Lands Office
Alaska Department of Natural Resources
Alaska Department of Environmental Conservation



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Executive Summary

This Plan of Operations (Plan) is submitted to the Mental Health Trust Land Office (Trust), the Alaska Department of Natural Resources (ADNR) and the Alaska Department of Environmental Conservation (ADEC) by Constantine North, Inc. (Constantine or the Company) for the Palmer Advanced Exploration Project (Palmer or the Project) located in the Porcupine Mining District in Southeast Alaska. This Plan describes the first phase in a two-phase advanced exploration program. Phase I includes surface construction activities which will be largely completed during the 2018 construction season. Phase II will be permitted through an amendment to this Plan that will be submitted to the agencies later in 2018. Phase II will include developing an underground ramp and performing underground exploratory drilling, along with activities associated with water and development rock management. The two Phase approach was adopted to allow Constantine to initiate the surface access work while they take the additional time required to fully evaluate groundwater and geochemical data and generate final designs and water and waste management plans for the underground program, while preserving the schedule of starting underground activities in Spring 2019.

The overall exploration program (Phase I and II) is directed at further evaluation of the South Wall Resource that has an inferred resource of 8.1 million tonnes with a grade of 1.41% copper, 5.25% zinc, 0.32 g/t gold and 31.7 g/t silver (using an NSR cut-off of US\$75/t). The long-term project objective is to continue the evaluating for as long as warranted, and to eventually assess the technical and economic viability of developing a mine.

The proposed Phase I activities covered in this Plan include extending the existing Glacier Creek access road 0.7 mi. to a proposed portal site, construction of two settling ponds, excavation of a trench for eventual placement of a buried water disposal system (LAD), and construction of ancillary surface facilities including laydown areas an avalanche deflection starter berm and three snow avalanche deflection mounds.

All the above-mentioned surface disturbance proposed in this Plan will occur on Trust surface lands, where the Trust also owns the subsurface estate. Constantine has an Upland Mining Lease (No. 9100759) for these lands from the Trust. There are no Federal actions associated with permitting the activities proposed in this Plan so there is no National Environmental Policy Act (NEPA) analysis required for the activities proposed in the Plan.

Constantine is also currently engaged in surface exploration activities, including helicopter-supported core drilling that is already authorized under separate State and Federal authorizations including ADNR APMA # J145690 and US Bureau of Land Management (BLM) Decision Record dated 8/18/2016, Case File AA-094088. This Plan does not incorporate, or discuss further, those surface exploration activities that are already authorized under other ADNR or BLM approvals. Constantine will continue those activities under those existing approvals concurrent with the new activities described in this Plan.

Thus, this Plan is to serve the purpose of acquiring approval from the Trust for the surface construction activities described herein and approval from ADNR for the Reclamation Plan that

is included in the Plan of Operations. Further, the Plan of Operations includes a cursory description of the future Phase II activities, for transparency and context.

The activities proposed in this Plan of Operations include:

1. Constructing 0.7 mi of access road, thereby extending the existing Glacier Creek access road to the proposed portal pad site,
2. Constructing a portal pad, a snow avalanche deflection berm and avalanche mounds,
3. Constructing two water settling ponds. ADNR jurisdictional dam approval process (if required) is separate from this Plan of Operations.
4. Constructing an LAD trench. ADEC LAD engineering design approval process is separate from this Plan of Operations.

Constantine has completed a variety of environmental and characterization studies which include Acid Base Accounting, Aquatic Biology, Cultural Resources, Geology, Geotechnical, Water Quality, Groundwater Hydrology, Wetlands, Wildlife and Wildlife Habitat, as a major step in characterizing the natural environment in the project area. Information derived from these studies was used to design this Phase I Plan and will be used extensively to design the Phase II Plan in the near future. Both plans strive to prevent unnecessary or undue environmental degradation to the environment.

The activities described in this Phase I Plan will create approximately 17 acres of new surface disturbance on Trust lands.

Abbreviations

AAC	Alaska Administrative Code
ACOE	Army Corp. of Engineers
ADEC	Alaska Department of Environmental Conservation
ADOT	Alaska Department of Transportation
ADNR	Alaska Department of Natural Resources
AHEA	Alaska Hardrock Exploration Application
AKNHP	Alaska National Heritage Program
ANSI	American National Standards Institute
APMA	Application for Permits to Mine in Alaska
APE	Area of Potential Effect
ARD/ML	Acid Rock Drainage/Metal Leaching
ASBP	Alaska Statewide Bonding Pool
AWAP	Wildlife Action Plan
BLM	Bureau of Land Management
BMP	Best Management Practice (s)
BMRR	Bureau of Mining Regulation and Reclamation
CAN	Canada
CEM	Constantine North, Inc. or Constantine Metal Resources
DMLW	Division of Mining, Land and Water
EPA	Environmental Protection Agency
ESA	Endangered Species Act
HDPE	High Density Polyethylene
JDR	Jurisdictional Determination Report
km	Kilometers
m	Meters
mi	miles
MSGP	Multi-Sector General Permit
MSDS	Material Safety Data Sheet (s)
MSHA	Mine Safety and Health Administration
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NLURA	Northern Land Use Research Alaska, LLC
NPDES	National Pollutant Discharge Elimination System
OHA	Office of History and Archaeology
Plan	Mining Plan
Project	Palmer Exploration Project
QAP	Quality Assurance Plan
ROW	Right-of-Way
SPCCP	Spill Prevention Control Countermeasure Plan
SOA	State of Alaska
SOI	Species of Interest

SSOC	State Species of Conservation Concern
SWPPP	Storm water Pollution Prevention Plan
US	United States
UUD	Unnecessary and Undue Degradation
SOA	State of Alaska
SOI	Species of Interest
SSOC	State Species of Conservation Concern
UUD	Unnecessary and Undue Degradation

1.0 INTRODUCTION

This Introduction includes brief descriptions of the location and access to the property, Constantine's land tenure and state, local and federal management plans and management objectives that are relevant to the use and management of the lands within the project area.

1.1 Location, Access and Property Description

The Project is in the Porcupine Mining District, 34 mi. northwest of Haines, Alaska, on the eastern margin of the Saint Elias mountain range. The western boundary of the Project is the international border with the Canadian province of British Columbia (Figure 1).

The Project is located proximal to the paved Haines Highway (Alaska Hwy 7), which leads to the town of Haines, Alaska, 34 mi. to the southeast, (Figure 1). Haines (population of 2,400) is a year-round deep-sea port at the northern end of the Alaska Marine Highway System. Haines has been providing services, skilled labor, accommodations and equipment to support Constantine's exploration activities to date.

The nearest major economic centers are Juneau (4.5 hours by Ferry) and Whitehorse, Yukon (249 mi. by Haines/Alaska Hwy 7). Daily scheduled flights connect Haines with Juneau (< 1 hour), which has daily connections with the continental US.

A secondary gravel logging road connects the project area to the Alaska Hwy 7 via a bridge across the Klehini River at 26 Mile known as Porcupine Crossing. Drill core storage and camp facilities are located on privately-owned land at the Big Nugget Camp located on Porcupine Creek, approximately 7 mi. from Mile 28 Bridge (Figure 2).

Surface access onto the Glacier Creek valley is a gravel road that extends approximately 4 mi. from the previously mentioned logging road. Constantine upgraded and extended the Glacier Creek access road, under approval from the ADNRC and BLM, in 2014, 2016 and 2017. Except for this access road, practical access to most of the property for mineral exploration is by helicopter. As discussed below, Constantine is proposing in this Plan of Operations to extend the Glacier Creek access road for 0.7 mi, on Trust lands, to the proposed portal site.

The larger Palmer property consists of a contiguous block of land comprising 340 federal unpatented lode mining claims, which cover an area of approximately 6,567 acres (~2,738 hectares), 63 state mining claims that cover an area of approximately 9,185 acres (~3,680 hectares), as well as approximately 65,834 acres under lease from the Mental Health Trust (Figure 3; Table 1). The surface rights are managed by the BLM, the State of Alaska and the Trust, respectively. However, all the surface disturbance proposed in this Plan of Operations will occur on Trust lands.



Figure 1 Location Map – Palmer Exploration Project

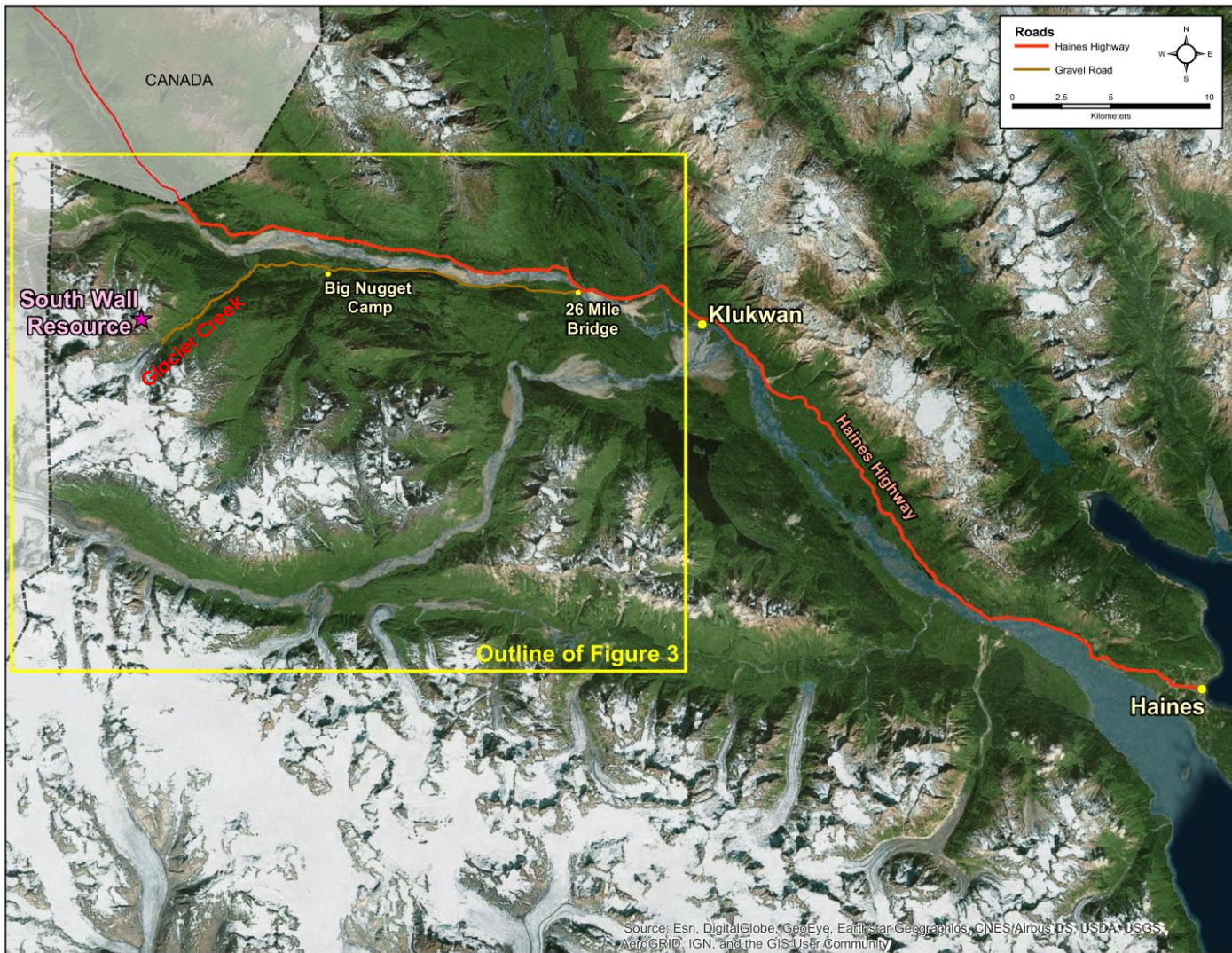


Figure 2 Project Location Map showing road access from Haines

Table 1. Mining Claims and Mineral Leases

Land Owner	Land Right Instrument	Acreage
State of Alaska	63 State Mining Claims	9,185
Mental Health Trust	Surface and Subsurface Lease	1,465
Mental Health Trust	Subsurface Lease	64,369
BLM	340 Federal Mining Claims	6,567

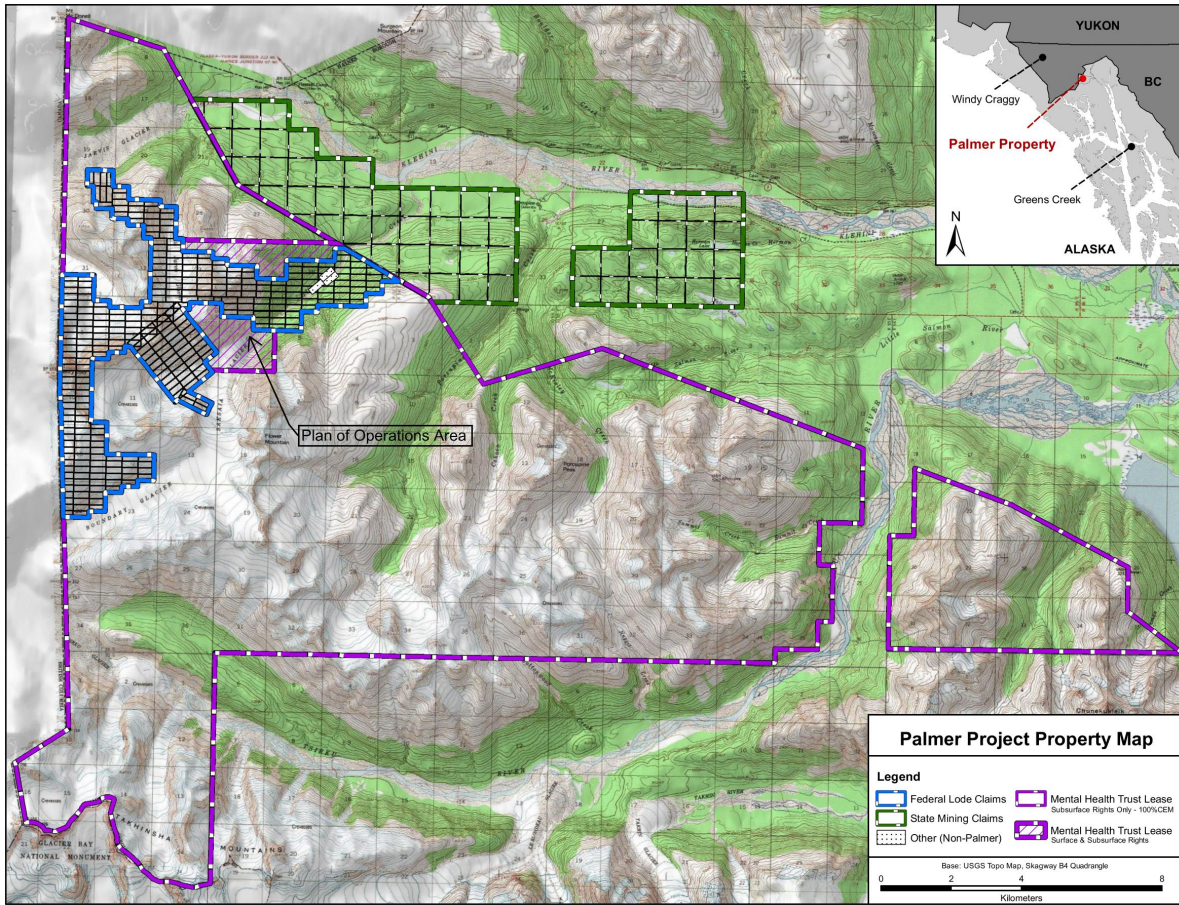


Figure 3 Palmer Project Property Map

1.2 Land Use Management Plans

There are three management plans that affect the larger Palmer property. These management plans include the Haines Borough Comprehensive Plan, the Haines State Forest Management Plan, and the BLM Ring of Fire Resource Management Plan. All three plans recognize mineral exploration and mining as important uses of the land and resources within the Project Area, and as such the activities proposed in this Plan of Operations are consistent with all three management plans. Each management plan is summarized below.

1.2.1 Haines Borough Comprehensive Plan

The larger Palmer property is located within the administrative boundaries of the Haines Borough (Figure 4). The Haines Borough Comprehensive Plan, last updated in 2012, is designed to act as a guide for citizens and decision-makers for land use, growth and development, and the enhancement of the quality of life for residents and visitors to the Haines community. The Haines

region has a history of mining, and mining is noted as an important sector to the local economy, as exemplified by Goal 10 of the Plan which is to "Support responsible development of renewable and nonrenewable resources within Haines Borough."

The larger Palmer property is in the 'General Use' but is also identified as an area for Resource Development in the Boroughs long term plans for Growth as shown in Figure 4. The Resource Development category is for land where "Resource development, extraction or harvest activities occur or are reasonably expected, including uses such as timber harvest, mineral extraction and quarries."

Economic Development Objective 10A of the Comprehensive Plan is to "Work with project developers and regulators to achieve responsible development, which is defined as complying with environmental regulations, ensuring fishery resource and riparian zone protection, providing protection of salmon habitat and Bald Eagle Preserve resources, maintaining scenic view sheds, and buffering operations when needed to protect adjacent users and activities."

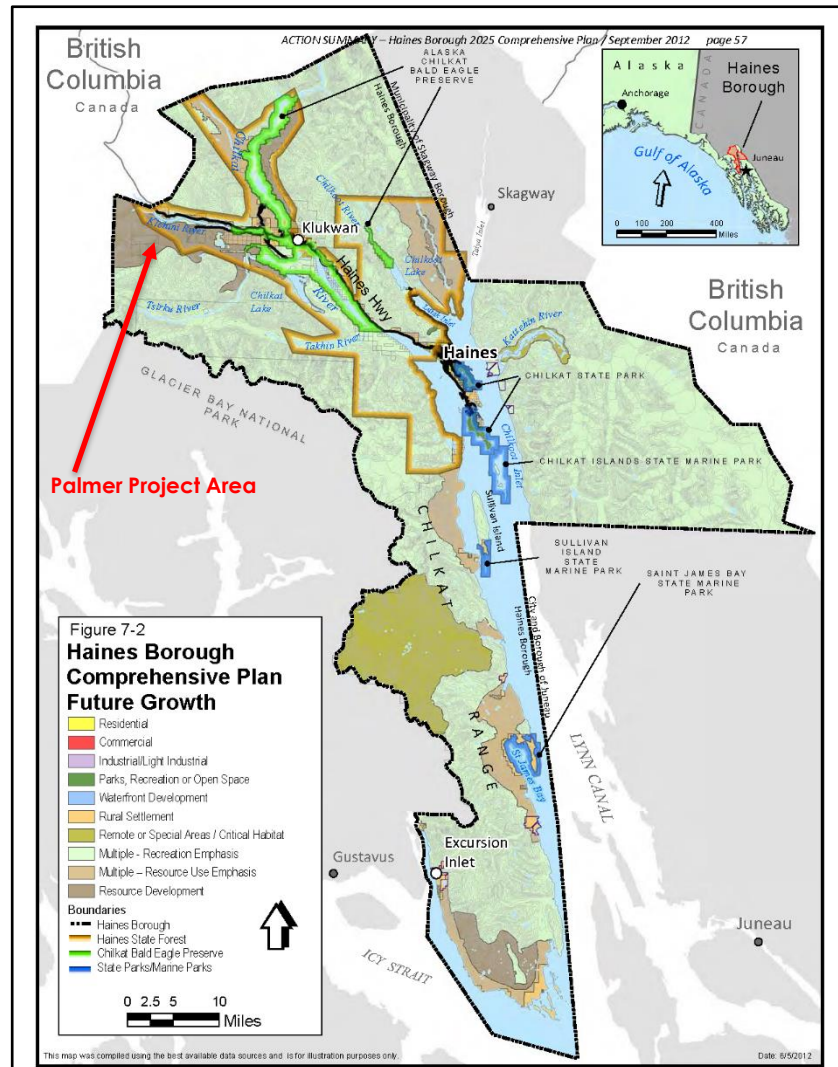
The work proposed in this Plan of Operations is designed to be consistent with the Haines Borough Comprehensive Plan, including the land use designation as Resources Development lands.

1.2.2 HAINES STATE FOREST RESOURCE MANAGEMENT PLAN

On July 1st, 1982, Alaska took the first step in the development of a system of State-owned lands legislatively dedicated to the multiple use management of forest resources. Alaska Statutes (AS) 41.15.300 established the Haines State Forest Resource Management Area (State Forest). At the same time, AS 41.21.611, established the Alaska Chilkat Bald Eagle Preserve, which is surrounded by the Haines State Forest Resource Management Area. This legislation was the result of cooperation among a host of diverse interest groups including resource developers and wildlife conservationists. AS 41.15.310 instructs the Alaska Division of Forestry to consult the Division of Parks, the Department of Fish and Game and the Alaska Chilkat Bald Eagle Preserve Advisory Council to promote effective, efficient, and coordinated administration of the Haines State Forest Resource Management Area and the Alaska Chilkat Bald Eagle Preserve for the values for which each was established.

The legislature intended the Haines State Forest to include timber harvest, recreation, mining, traditional uses, fish and wildlife habitat protection, tourism, and other uses. The type, intensity, and location of these uses was, under AS 38.04.005, to be derived from a planning process that would determine the best balance of these uses. Most importantly, the State Forest was to be managed for multiple uses. Multiple use management could include a mix of those uses identified under AS 38.05.112(c) and varying levels of use, depending on the results of the planning analysis.

The Chilkat Bald Eagle Preserve in contrast has an 'exclusive use' management intent, rather than multiple use. Its management focuses on the protection of bald eagles and their habitat, including the spawning and rearing areas of the anadromous streams that provide food for the



bald eagle population. The traditional lifestyle of the Haines community is recognized as an important value and its continuation is included in the management of the Preserve. AS 41.21.60 (c) also includes language that the legislature determines that there is no need for legislation expanding or contracting the boundary of the Alaska Chilkat Bald Eagle Preserve in the future.

This distinction between multiple use and exclusive use was intended by the Legislature. According to AS 41.21.610(c): "Accordingly, the establishment of the Alaska Chilkat Bald Eagle Preserve and the Haines State Forest Resource Management Area under AS 41.15.305 is determined to represent a proper balance between the preservation of state public domain

land and water for bald eagle preserve purposes and state public domain land and water more appropriate for multiple use."

1.2.3 BLM - RING OF FIRE MANAGEMENT PLAN

While the Lands covered by this Plan of Operations are Mental Health Trust Lands, the larger Palmer property controlled by Constantine also includes lands managed by the Bureau of Land Management. The BLM approved the Ring of Fire Management Plan through its Record of Decision in March 2008. In 2012, the BLM drafted an amendment to the plan for the Haines area, principally to incorporate considerations for Mountain Goat populations and potential impacts from growing helicopter ski-tourism activities. The draft Haines Area Plan amendment was released for public comment in December 2012, but final approval has been delayed by the BLM. The mineral potential within the Palmer Project Area was recognized in the 2008 Ring of Fire Management Plan which states that the "BLM lands will be managed within the planning to provide opportunities for mineral exploration and development in a manner that prevents undue and unnecessary degradation resulting from development of locatable and saleable minerals."

1.2.4 Mental Health Trust Land Use Objectives

The lands on which all the Plan activities will occur is Mental Health Trust lands. The Trust selected the lands in and around the Palmer Project area primarily for their mineral potential. The Trust's larger holdings in the area represent approximately 10% of the Trust's land holding statewide.

Trust lands are managed separately from other State of Alaska lands, in accordance with regulations adopted in 1997. The regulations provide that Trust lands are managed solely in the best interest of the Alaska Mental Health Trust Authority and its beneficiaries.

Management of Trust resources is governed by statute and regulation. The Trust Land Office is required to:

- Protect and enhance the long-term productivity of Trust land;
- Maximize long-term revenue from Trust land;
- Encourage a diversity of revenue-producing uses of Trust land; and
- Manage Trust land prudently, efficiently and with accountability to The Trust and its beneficiaries.

The Trust previously generated a Best Interest Decision as a step in issuing the Lease for the Trust lands that Constantine currently holds. Amount other things the Decision determined that "the proposed use is consistent with the designated uses in the (various state and local government land use) Plans. The Decision further states that Trust land was selected for its mineral potential and the only value to the Trust is through mineral exploration, development and production.

2.0 REGULATORY REQUIREMENTS

This section provides a discussion of the regulatory requirements that apply to the activities proposed in this Plan of Operations. One of Constantine's goals in developing this Plan of Operations document is to illustrate how they will meet these regulatory requirements.

Constantine has made a substantive effort to define the baseline conditions of the natural environment in the project area, in advance of starting any substantial surface disturbance. It has incorporated that baseline data into this Plan and designed its activities with a deliberate objective of minimizing the impacts to the environment that might result from those activities and, meeting all the regulatory requirements addressed in this section.

Constantine has reviewed the applicable State, Federal and local regulations and believes that the activities proposed in the Plan require the following submittals, regulatory reviews and approvals, and plans;

- Review and approval of this Plan of Operations by the Alaska Mental Health Trust Land Office
- Review and approval of the Reclamation Plan (part of this Plan of Operations) by ADNR
- Review of engineering design for LAD and Approval to Construct from ADEC
- Maintain a current Storm Water Pollution Prevention Plan for their existing Construction General Permit.
- Maintain a current self-certified EPA-compliant Tier 1 Spill Prevention Control and Countermeasure (SPCC) Plan for their fueling operations, that meets all the requirements of 40 CFR part 112.7.

The regulatory basis for this list of submittals, reviews and approvals is described below;

2.1 State of Alaska Regulations

2.1.1 Plan of Operations Regulations

All the lands (surface and subsurface estates) included in this Plan of Operations are Mental Health Trust lands controlled by Constantine through a lease with the Trust. One stipulation in the lease is that Constantine provide an annual Plan of Operations for the Trust to review. This Plan will meet the lease requirement as well as serving the needs of ADNR and ADEC for reviewing and approving the Reclamation Plan and associated reclamation cost estimate as allowed under 11 AAC 86.800(f) which states that "For the operator's convenience, a Plan of Operations may include information needed to apply for approvals from other departments or local and

federal agencies under other applicable laws and regulations, such as effects of the operation on air and water quality, disposal of toxic wastes, effects on navigation, and effects on anadromous fish habitat"

2.1.2 Reclamation Plan and Reclamation Bonding Regulations

Although the lands affected by the activities in the Plan are Trust Lands, ADNR retains authority over reclamation and securing a reclamation financial assurance under AS 27.19 and 11 AAC 97. Specifically, 11 AAC 97.200 sets certain performance standards for reclamation that require a site to be reclaimed to a stable condition relative to erosion (after one year) and to naturally revegetate (after 5 years), as well as other requirements. 11 AAC 97.210 addresses the removal of buildings, debris and structures on state land, including the option of leaving buildings and structures if the surface owner or land manager approves it. Additional requirements for the Reclamation Plan are prescribed in 11 AAC 97.300. Reclamation bonding is regulated under 11 AAC 97.400 and requires posting a personal bond accompanied by a letter of credit, deposit of gold or cash under 11 AAC 97.410. This Plan of Operations includes a Reclamation Plan which meets the regulatory requirements for a reclamation plan and it is described in Section 4.0 and in Appendix C with an estimate of reclamation costs.

2.1.3 Dam Safety Regulations

Currently nothing in the designs proposed in this Plan appears to fall under the ADNR Dam Safety regulations. Constantine does intend to initiate construction of the two settling ponds in 2018 as part of this Plan. However, the conceptual design of the two settling ponds indicates the embankments on the downhill side of the ponds are not large enough to fall under the jurisdiction of the Alaska dam safety program (see AS 46.17.900). If subsequent design changes result in impoundments that may fall under their jurisdiction then Constantine will proceed with the Alaska dam safety program process for their review and approval in a process parallel to, but separate from, this Plan of Operations review and approval process.

2.1.4 Water Regulations

Constantine will not be performing any underground work as part of this Phase I Plan, so the Company will not be managing any natural underground water inflows during the activities described in this Plan. However, Constantine is intending to start the initial construction of the LAD system which will eventually be used to discharge underground water inflows after it is allowed to pass through the two settling ponds. Underground inflows that are of good water quality are regulated as non-domestic waste water by ADEC. Non-domestic wastewater is regulated under 18 AAC 72. This disposal type does not normally require a discharge permit from ADEC under 18 AAC 72.500, but it does require in 18 AAC 72.600 that a person who constructs, alters, installs, modifies, or operates any part of a nondomestic wastewater treatment works or disposal system must first have written department approval of engineering plans submitted under this section. As described in this Plan Constantine intends to excavate the LAD trench under this Plan but will not be installing the piping or commissioning the LAD until underground operations are permitted in the future and no earlier than in 2019. Therefore,

Constantine will be submitting the engineering design for the LAD to ADEC in a process parallel to, but separate from, this Plan of Operations review and approval process.

The LAD likely also requires a Class V Underground Injection Control Permit from the EPA, regulated under 40 CFR 144.8, because the intent is to bury the LAD system underground (to prevent freezing). This is described in more detail under Federal Government Regulations in Section 2.2.2 below.

2.1.5 Storm Water Regulations

Storm water on the project site is regulated by ADEC under the APDES Program, delegated to the State by the EPA. Storm water management for the project is managed under the terms of the Construction General Permit (CGP, Permit No. ACR100000) for storm water discharges associated with Industrial Activity. Storm water discharges associated with industrial activities are defined by 40 CFR 122.26(b) (14) (i-ix and xi). The CGP authorizes and sets conditions on the discharge of pollutants from certain industrial activities to waters of the United States. To ensure protection of water quality and human health, the permit establishes control measures and best management practices (BMP's) that must be used to control the types and amounts of pollutants that can be discharged from certain industrial activities. This general permit is intended to regulate storm water (rain and snowmelt) runoff which encounters industrial activities and materials which have the potential to cause contamination. The quantities and types of storm water discharged are dependent on many variables, including the type of industrial activity that the facility is engaged in (sector of industry), pollutants of concern, and the type and intensity of the runoff event.

To obtain authorization to operate under the CGP the permittee must Develop a SWPPP according to the requirements of permit Part 5 and submit the SWPPP to ADEC. Further, the permittee must select, design, install and implement control measures (BMP's) to meet effluent limits. Finally, the permittee must submit a complete and accurate Notice of Intent (NOI) to operate under the CGP to ADEC and pay the general permit authorization fee in accordance with 18 AAC 72.

Beginning in 2014 Constantine has maintained a SWPPP and installed BMP's to meet the pollution minimization requirements of the CGP along the segments of the Glacier Creek access road that it constructed through 2017. Constantine will be submitting an updated SWPPP to ADEC prior to initiating the 0.7 mi. road extension in 2018. Based on an interpretation of the terms of the CGP, storm water sampling is limited the "visual monitoring" described in Part 7.4 of the CGP. The SWPPP is included in Appendix A.

2.1.6 Fish Passage Regulations

All the activities proposed in the Plan of Operations will occur in the upper portions of the Glacier Creek valley where the creek and its tributaries are non-fish bearing. In addition, no new stream crossings are contemplated for the 0.7 mi. road extension. As a result, there are no ADF&G Title

16 permits required to complete the activities proposed in this Plan. In addition, ADF&G staff have been performing aquatic studies in lower Glacier Creek and are familiar with our explorations activities.

2.2 Federal Government Regulations

All the surface disturbances proposed in this Plan of Operations will occur on uplands on Mental Health Trust Lands. No dredge or fill of wetlands is being proposed. No Clean Water Act Section 404 wetland permit or other Federal decision-level permits are required. In the absence of any Federal decision-level permits, no National Environmental Policy Act (NEPA) analysis is required for activities proposed in this Plan of Operations.

2.2.1 Fuel Spill Prevention

Fuel spill prevention is regulated under EPA's Oil Spills Prevention and Preparedness Regulations under 40 CFR Part 112. Cumulative fuel storage for the Project will exceed 1,320 gallons, but not exceed 10,000 gallons aggregate, and no single tank will have a capacity exceeding 5,000 gallons. As a result, the project qualifies as a Tier I facility under CFR 112.3 (g). Constantine is already operating under an EPA-compliant Tier 1 Spill Prevention Control and Countermeasure (SPCC) Plan and will continue to do so. Under CFR 112.6 Tier I-qualified facilities must either: comply with the requirements of paragraph 112 (a)(3) of this section; or prepare and implement an SPCC Plan that meets all requirements of paragraph (b) of this section; or prepare and implement a plan meeting the general plan requirements in § 112.7 and applicable requirements in subparts B and C, including having the plan certified by a Professional Engineer as required under § 112.3(d)). Paragraph 112 (a)(3) lists the requirements that must be met in the SPCC plan and describes a template that may be used as the SPCC Plan, once completed and certified by the facility owner. The SPCC Plan is included in Appendix B to this Plan of Operations.

2.2.2 Discharge to the LAD System

As previously described Constantine will likely initiate excavation of the LAD trench during the Phase I activities described under this Plan, although the LAD piping would not be installed until sometime in 2019. Eventually natural groundwater seepage into the exploration ramp (permitted under a future amendment to this Plan) will be collected and passed through the settling ponds before being discharged through the LAD. The design of the LAD includes burying the discharge-end of the system underground, below the depth of seasonal frost to ensure that the system operates year-round. Under this scenario, the LAD appears to meet the definition of a "well" in 40 CFR 144.3 - Well means: *A bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system (emphasis added).* As a "well" the LAD will require a Class V Underground Injection Control Permit from the EPA, regulated under 40 CFR 144.8. However, this is an "authorization by rule" (aka "notice-level" permit, not subject to a Federal decision) which requires Constantine to complete an EPA

inventory form and comply with the permit stipulations which are meant to protect water quality. This does not trigger NEPA. Constantine will be complying with all applicable regulations for the Class V underground injection well in a process parallel to, but separate from, this Plan of Operations review and approval process.

3.0 DESCRIPTION OF OPERATIONS

This section describes the activities being proposed under this Phase I Plan of Operations. As previously mentioned Phase I is a precursor to Phase II operations which will be approved under a subsequent Plan of Operations amendment for underground activities and development rock and underground seepage water management to commence in 2019.

Fundamentally the activities described in this Phase I Plan will allow Constantine to develop the surface access and initiate construction of certain surface facilities it requires to move forward with Phase II activities in 2019. The major Phase I & II Plan components are illustrated on Figure 5. The Phase I components include:

- Extending the Glacier Creek access road for 0.7 mi to the proposed portal site,
- Initiating constructing of two settling ponds
- excavating a trench for future installation of a buried LAD water disposal system.
- constructing other limited surface infrastructure including laydown areas, portal pad, avalanche starter berm and mounds.

3.1 Future Underground Activities

No underground activities are being proposed in this Plan of Operations. However, the activities proposed in this Plan are designed to position Constantine to initiate underground exploration activities in 2019, under a future amendment to this Plan of Operations that may also require additional permits. Therefore, the underground activities are described in general terms here, for transparency and context.

During future operations (tentatively planned for 2019) Constantine will collar a portal and develop approximately 6,600 ft. of underground ramp, to provide a platform for underground core drilling. The underground ramp will also provide bedrock exposures for detailed geological and geotechnical mapping and collection of additional important hydrogeological data. All development rock will be hauled to the surface and permanently disposed of by being used in construction of an avalanche berm, avalanche mounds or other construction purposes.

The cross-sectional dimensions of the ramp would be approximately 13 feet by 13 feet. The mining and the drilling will be performed by contractors under Constantine's supervision.

Development rock ABA characterization studies are ongoing. Waste will be managed as required by regulation. Constantine is not anticipating intersecting any mineralized zones (i.e. no massive sulfide) in the development ramp. There are no current plans to remove any mineralized material from the ramp system (i.e. for a bulk sample).

Natural groundwater inflows into the underground ramp is anticipated. Water will be managed and likely discharged through a Land Application Disposal System (LAD). The LAD system design will require approval from ADEC. Constantine is also contemplating a second discharge point within an abandoned stream channel of a tributary to Glacier Creek. This abandoned channel is presumed to have a hydraulic connection with active channel, so it would require an APDES permit from ADEC.

Underground exploration will consist of core drilling, utilizing one or more portable drills from stations located along the underground ramp system. Details for the drilling plan are still being developed.

As previously described all underground activities and an updated reclamation plan will be authorized in the future under a Plan of Operations Amendment from the Trust, an updated Reclamation Plan Approval from ADNR, LAD and APDES approvals/permits from ADEC. The components of the future underground program including the portal, underground ramp, and future surface infrastructure including piping for the water settling ponds and LAD, are all depicted on Figure 5 for transparency and clarity about what Constantine intends to permit in a future amendment to this Plan of Operations.

3.2 Surface Operations

3.2.1 Access Road and Portal Pad Construction

As part this Plan of Operations Constantine proposes extending the existing Glacier Creek access road for approximately 0.7 mi. to the proposed portal location, as illustrated in Figure 5, and constructing a portal pad. The portal pad will serve several purposes during the future Phase II program, including temporary storage of development rock, placement of generators, fuel storage and laydown. The extended access road will also continue to provide a staging point for company employees and contractors to hike out of, or into, work sites, which is also considered important for emergency response in times of heavy fog and cloud cover for concurrent surface exploration and other operations that are otherwise dependent on helicopter.

The road will be constructed like the existing access road, using cut and fill construction. The road surface will be approximately 14 ft. wide. Additional fill material (if required) would be sourced from the material site (quarry) shown in Figure 5 or an alternate source. The material site(s) will likely be converted to laydown/storage areas once sufficient construction material has been removed. The proposed road extension is situated above treeline so there would be no tree cutting involved in the construction. There is not sufficient soil development to allow segregation of organic topsoil for future use. Constantine is already complying with BLM requirements to minimize invasive species introduction along the existing access road. Constantine requires that all vehicles are pressure washed prior to entering the Glacier Creek access road to reduce the likelihood of introducing invasive plant material from the tires and

wheel wells. Constantine's continued compliance with this requirement will have the effect of reducing the introduction of invasive species on Trust lands as well.

Ditches will be constructed along the uphill/cut sides of roads to manage storm water, and the downhill sides of roads will be bermed to meet MSHA requirements. The storm water ditches would typically terminate near road curves and discharge storm water to uplands where it will naturally seep into the ground. Where conditions warrant, BMP's including energy dissipaters, relief culverts, and sediment basins, or similar, would also be installed to reduce sediment transport and encourage sedimentation. Upper Glacier Creek and its tributaries are non-fish-bearing, and naturally quite turbid during the thawed months owing to the persistent presence of glacial silt from the Saksia Glacier.

The portal pad will be constructed using cut and fill methods, to create an approximate 115 ft. by 65 ft. flat area and expose an approximately 30 ft. high face in bedrock to provide a suitable surface to collar the portal. The portal won't be collared under this Plan. It will be addressed in the future amendment to this Plan.

The portal pad area is susceptible to powder-snow avalanches so there will be minimal use of the pad for storage or facilities. But it will provide installation space for the diesel generators, ventilation fan and air compressor required to support underground activities, and fuel storage sufficient for the generator. The portal site was selected based on having the least exposure to all avalanche types, while still meeting other critical engineering and design criteria. Its location is outside the path of dense avalanches, however remains within the potential area of influence of the powder blast component of large dry powder avalanches. An operational avalanche safety plan will be developed to mitigate avalanche hazard for workers and equipment at the site. As part of Phase II, Constantine intends to construct a steel portal cover extending out from the portal itself to mitigate and protect from rockfall, sluffs and small slides generated immediately above the portal to help maintain ingress and egress to the underground ramp.

The following is a representative list of mobile equipment used for road and portal pad construction:

- One excavator approximately CAT 320 to CAT 335 size
- One excavator approximately CAT 335 to CAT 345 size
- One front end loader approximately CAT 980 size
- One dozer approximately CAT D-6 size
- One dozer approximately CAT D-8 size
- Three center articulated trucks approximately CAT 725 size
- One vibratory roller approximately CAT 563 size
- One road grader approximately CAT 14G size
- One air-track drill
- Four pickup trucks

Note: Laydown areas would be constructed as part of the road construction.

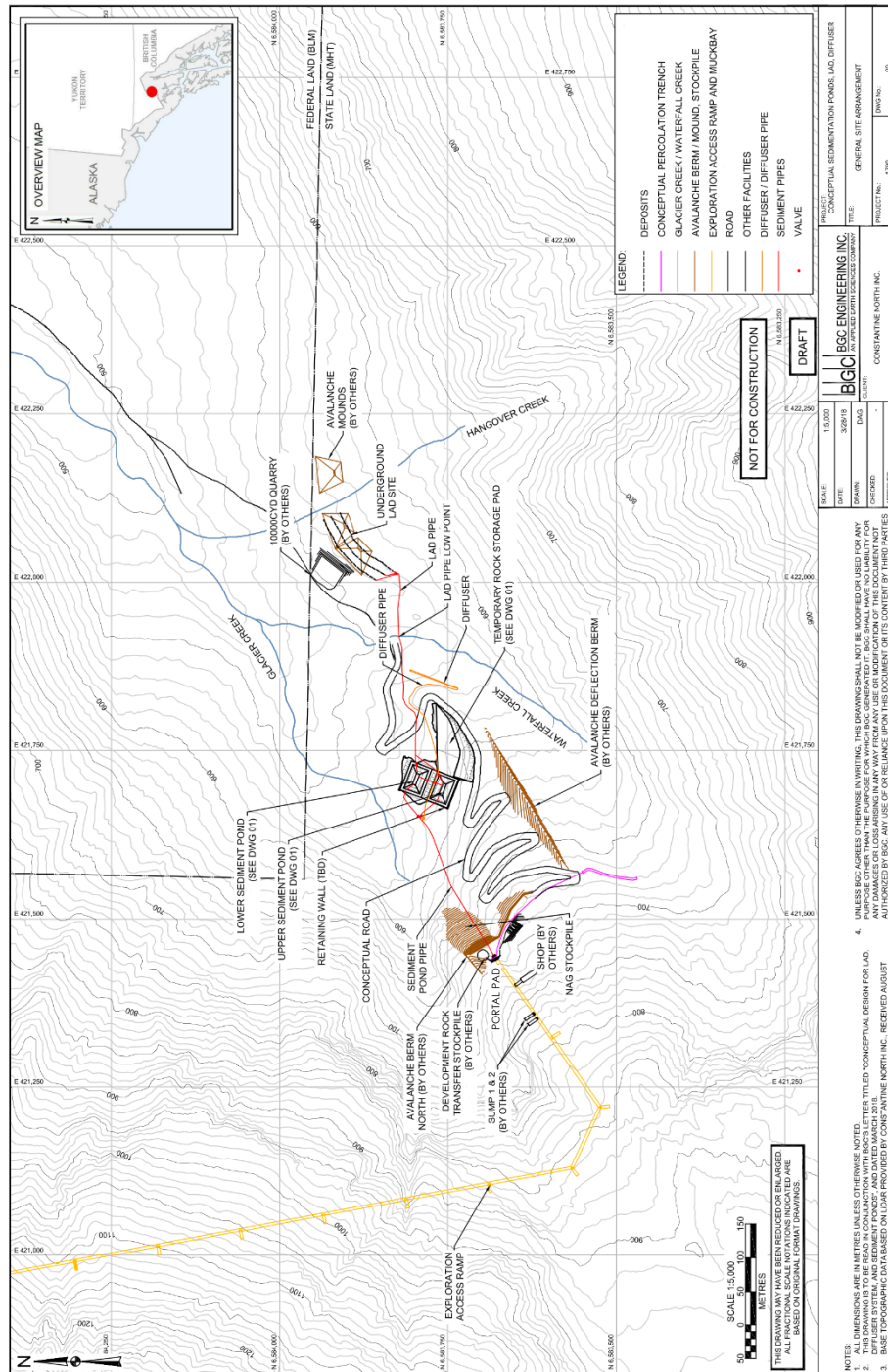


Figure 5 Site Map with Components of Plan of Operation

3.2.2 Water Settling Pond Construction

Constantine proposes constructing two water settling ponds in this Phase I Plan. During Phase II following an amendment to this Plan, the ponds will be commissioned and used to temporarily store portal water and allow suspended solids to settle, prior to conveying the water to LAD or APDES discharge point (outfall). The location of the ponds is illustrated in Figure 5. and the draft design details are provided in Figures 6a & b. The ponds will be lined and constructed using native materials from the site.

The conceptual design of the ponds indicates the impoundments will not be jurisdictional "dams" under the regulations of the Alaska Dam Safety Program. Should the design change sufficient to suggest that they may be, then the Company will engage ADNRC Dam safety in the review of them.

The location of the settling ponds was selected because it is outside the historic and modelled path of dense snow avalanches. However, there is some potential for avalanche debris and lighter avalanche constituents to reach the ponds. As a result, the Company has included construction of a snow deflection berm in this Plan to reduce this possibility as shown in Figure 5. The berm will be built using a combination of borrow material and NAG development rock as described in more detail in Section 3.2.4.

There will also be a development rock storage area constructed adjacent to the settling ponds. As will be discussed in the future Plan of Operations amendment, this storage area is designed to drain into the water settling ponds and could be used to temporarily store any potentially acid-generating development rock in the unlikely event the Company encounters any during the underground phase of the project.

Construction of the settling ponds will proceed concomitant with construction of the upper portal access road, by a separate construction crew. Likely mobile equipment required for the pond construction includes:

- One excavator approximately CAT 320 to CAT 335 size
- One front end loader approximately CAT 980 size
- One dozer approximately CAT D-6 to CAT D-8 size
- Two center articulated trucks approximately CAT 725 size
- One vibratory roller approximately CAT 563 size
- Three pickup trucks

Note: Some of the ponds construction equipment could be the same pieces of equipment used for road construction.

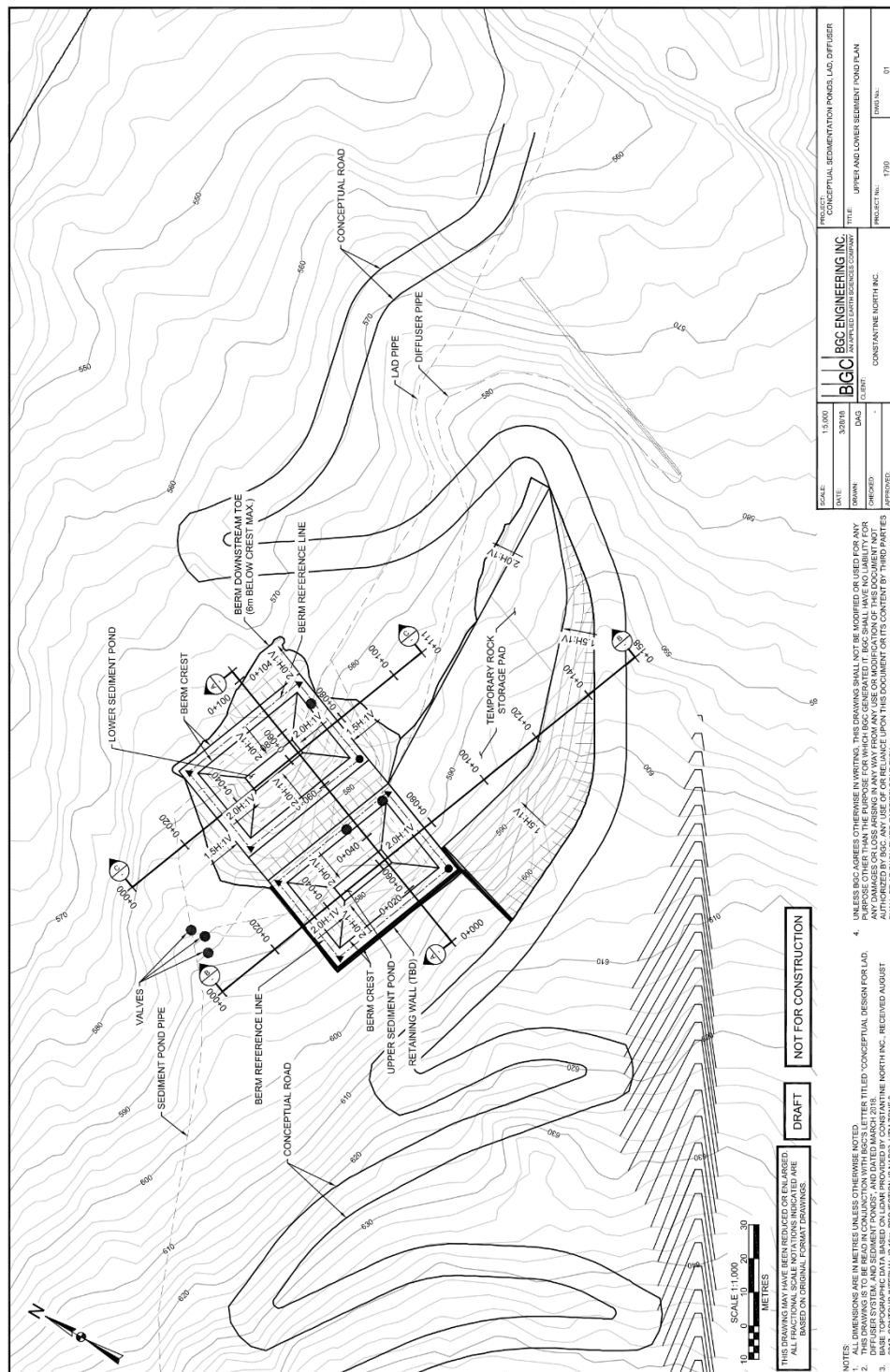


Figure 6a Water Settling Pond Design Plan View

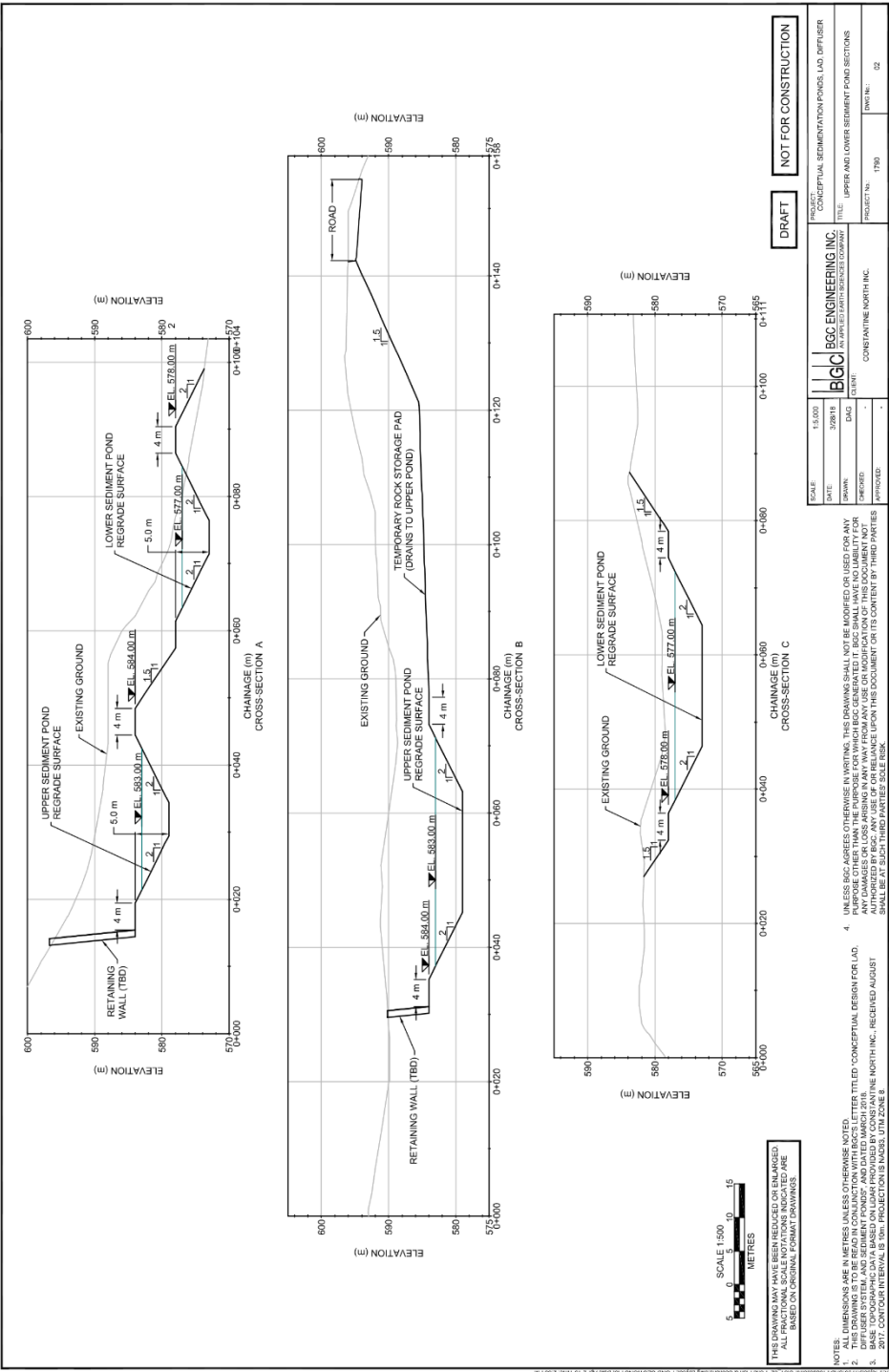


Figure 7b Water Settling Pond Design Cross Section View

3.2.3 Land Application Disposal System Construction

During Phase II, natural underground seepage water inflows will be directed to the two settling ponds and piped to, and disposed of through, the land application disposal system (LAD). The LAD location is illustrated in Figure 5. The LAD will be constructed like a shallow septic system drain field, consisting of a shallow-buried, perforated pipe that allow the water to seep into the native ground. The LAD will be constructed in two phases. During 2018, as part of the activities authorized under this Plan of Operations, the LAD percolation trench will be excavated. In 2019, under an amendment to this Plan, the LAD piping will be installed, and the LAD will be connected to the settling pond discharge line. Tentatively, The LAD will be constructed with multiple zones, that allow some management flexibility with the system. The LAD pipes will be buried at sufficient depth below the surface, to maintain the functionality of LAD during surface freezing conditions (winter). The LAD has been designed by an Alaska PE and the engineering plans will be submitted to ADEC for review in the future. Under State regulation 18 AAC 72.600 for discharge of nondomestic wastewater, ADEC must review the LAD design, and if acceptable, they will issue a certificate to construct the LAD.

The LAD is being designed to accept 3,000 gallons per minute (gpm) of water even though seepage water inflows are likely to be 500 gpm or less. This will provide a margin of operational flexibility for the LAD and allows us to direct water to one of the cells within the LAD trench. This will allow us to target discharges to certain cells while allowing other cells to “rest”, thus helping to ensure the longer-term functionality of the LAD.

The location of the LAD was specifically selected because of the high infiltration rates of the material into which the LAD is being constructed. Infiltration testing, completed in 2017 established that the area selected for the LAD had some of the highest infiltration rates of any near-surface material tested in the upper Glacier Creek valley. That material consists of an alluvial fan which comprises broad and deep deposits of gravel and finer constituents deposited primarily by water in a series of stream channels that migrated across the top of the fan, over time, resulting in the gradual accumulation of gravel and finer constituents to form the fan at the base of the gully.

3.2.4 Avalanche Deflection Berm and Avalanche Mounds Construction

Starting in 2018, under this Plan, Constantine proposes initiating construction of an avalanche deflection berm that will provide a measure of protection from avalanche debris (mainly snow) for the settling ponds and eventually for the upper portal road (Figure 5). During 2018, Constantine will build a “starter” berm that will form the bottom of the ultimate berm. This starter berm will provide a measure of avalanche protection for the settling ponds and likely be constructed of material excavated during the pond construction activities. In 2019, under an amendment to this Plan, Constantine will continue to construct this berm, upslope from the starter berm, using development rock, to extend avalanche protection to the switchbacks on the upper portal access road. Constantine will also be constructing three avalanche mounds as shown on Figure 5 that will help protect the Glacier Creek access road where it crosses a major avalanche chute and is seeking approval to construct these mounds in this Plan of Operations.

3.2.5 Surface Support Facilities Construction

The project will eventually require limited surface facilities to support the Phase II underground ramp development and exploration drilling program. However, Constantine does not propose constructing any of these in 2018 as part this Phase I Plan of Operations.

In a future amendment to this Plan of Operations, the Company will describe additional surface facilities that will be required to support any underground exploration program. This will likely include primary and backup diesel generators, diesel fuel supply tank, ventilation fan(s) and an air compressor. These will be staged at a dedicated location near the portal.

3.3 Fuel Management

Fuel and fuel-related substances that will be used for activities contemplated under this Phase I Plan include gasoline, diesel, and lubricating grease and oils.

Constantine already has a permitted fuel storage facility on BLM land adjacent to the lower section of the Glacier Creek Road at 2.4 mi. It consists of a 5,000-gallon diesel fuel storage tank and a 3,000-helicopter fuel (Jet A) storage tank. Transient 70-gallon fly tanks are also stored and refilled within the secondary containment here. All fuel tanks meet the requirements of EPA and NFPA 30 codes. NFPA regulations are enforceable under OSHA and many state and local regulations. NFPA 30 provides safeguards to reduce the hazards associated with the storage, handling, and use of flammable and combustible liquids. NFPA 30 codes also address fire and explosion prevention and risk control, storage of liquids in containers, storage of liquids in tanks, piping systems, processing facilities and bulk loading and unloading.

Constantine will continue to use this facility as the primary fuel storage and transfer facility through Phase I operations. Constantine has developed a self-certified EPA-compliant Tier 1 Spill Prevention Control and Countermeasure (SPCC) Plan for their fueling operations that meets all the requirements of 40 CFR part 112.7 and will maintain that plan fuel storage and transfer operations. The SPCC Plan outlines proper storage, transfer and maintenance procedures as well as employee training and documentation of regular visual inspections. All fuel storage containers greater than 55 gallons will be double-walled or stored within secondary containment capable of holding at least 110% of the largest container within the containment. Smaller containers (e.g. fuel drums and jerry cans) will be stored in containment where practicable. Fuel transfer will take place within containment or over drip pans where practicable. Absorbent pads and spill kits will be readily available at fuel storage and transfer sites. If a reportable quantity of hazardous or regulated materials, such as diesel fuel, is spilled, measures will be taken to control the spill, and reporting requirements will be fulfilled.

Fuel levels in the storage tanks will be maintained by local (Haines) fuel service providers. The entire fuel tank area at 2.4 mi. employs secondary spill containment measures that meet or exceed State and Federal regulations. Secondary containment is designed to hold 110% of fuel volume of the largest container.

Light-duty vehicles and heavy equipment will also be utilized on the project. Approximately 200 gallons of gasoline will be stored in fuel delivery systems for light vehicles, and approximately 400 gallons of diesel will be stored in fuel delivery systems of heavy equipment.

Constantine personnel are trained in spill prevention and spill response procedures. Spill kits are maintained in key areas. An assigned worker inspects spill kits weekly to check equipment serviceability and ensure that kits are fully stocked. Select Constantine personnel complete documented task-training in fuel handling, fuel storage, and fuel transferring procedures at least once a year. This includes training in visual inspections of fuel containers. All new personnel to the Project must complete the same training before they are authorized to carry-out any fuel-related tasks.

Fuel storage containers are visually checked weekly (or more frequently, as required) by an assigned worker either with a dip-stick or by viewing the liquid level through the fill. Fuel levels (and volumes) are also checked in the same manner before storage tanks are re-filled. On a weekly basis, an assigned and qualified worker visually inspects all tanks, couplings, valves, fittings, filter housings, nozzles, and other fittings for signs of deterioration, damage, or leakage. On a weekly basis, or after heavy rainfalls, an assigned worker will also conduct inspections of containments checking for signs of damage, deterioration, discharge, or fuel accumulation.

3.4 Storm Water Management

Storm water will be managed under the Construction General permit (APDES Permit Authorization No. AKR10FL42) and in accordance with the Storm Water Pollution Prevention Plan (SWPPP, Glacier Creek Road Phases 4, 5) included in Appendix A. The goal of the SWPPP is to capture and divert storm water runoff before allowing it to discharge into Glacier Creek or one of its tributaries, while minimizing pollution by encouraging suspended solids to settle with the use of BMP's that include energy dissipation structures and settling basins. As outlined in the SWPPP, storm water will be captured from the portal access road and other disturbed areas and conveyed through road-side diversion ditches and culverts to uplands or Glacier Creek. Storm water BMP's are inspected regularly for function, and storm water is monitored visually, particularly during storm events and inspection records are maintained in accordance with the requirements of the CGP.

3.5 Waste Management

Constantine will generate certain waste streams in the normal course of completing the operations proposed in this Plan of Operations. Solid waste and refuse will be taken to Haines or Whitehorse, Yukon and disposed consistent with applicable regulations.

Constantine will generate a limited amount of hazardous waste in the form of used waste oil derived from maintenance of the mobile fleet of equipment used on site. All hazardous wastes generated by the Project will be disposed of at an authorized facility off site, possibly in Haines or Whitehorse, Yukon, consistent with applicable regulations. All containers of hazardous

substances, including used waste oil, will be labeled and transported in accordance with Alaska Department of Transportation ("ADOT") regulations. Managing these wastes will be the responsibility of our earth works contractor who is providing all equipment maintenance.

If a reportable quantity of hazardous material including fuel or a hazardous waste is spilled, measures will be taken to control the spill and the ADEC Emergency Response Hotline will be notified, as required. If any oil, hazardous material, or chemicals are spilled during operations, they will be cleaned up in a timely manner. After clean-up, the hazardous waste and any contaminated material will be removed and disposed of at an approved disposal facility.

Porta-Potties or equivalent will be placed on site to meet the needs of the construction workers.

Fueling operations (diesel and gasoline) are also described in Section 3.3

3.6 Snow Management – Avalanche Safety

Constantine anticipates completing all the construction activities in this Phase I Plan outside of the normal avalanche season. However, some of the facilities being permitted under this Phase I Plan are for avalanche mitigation, and the Phase II activities (permitted in future) will continue throughout the year, so some avalanche information is being provided here for transparency and context. Glacier Creek valley is subject to periodic snow avalanches throughout the winter and spring months. Constantine has initiated a snow monitoring program that collects snow depth and avalanche data using both instrumentation and aerial-based observations. The results of that monitoring program suggest that the Glacier Creek access road will be subject to periodic avalanches that could restrict access both during periods of high avalanche risk and during snow clearing operations after avalanches. While both the proposed portal area and the settling ponds are outside the main paths of dense avalanches, there is some risk of being impacted by powder avalanches and or the lateral portions of dense avalanches. Constantine has engaged avalanche consultants to evaluate the snow and avalanche monitoring data, develop mitigation measures and to develop an Operational Avalanche Safety Plan which will be introduced in an amendment to this Plan as part of Phase II of the project. Some mitigation measures including the construction of avalanche berms and mounds are discussed in this Plan as well.

4.0 ENVIRONMENTAL CHARACTERIZATION AND MONITORING

Constantine has been performing several environmental monitoring, characterization and mapping programs for the project, started as early as 2008. Most of these efforts started in 2014, some are ongoing, and some will continue for the foreseeable future. The broader effort has included surface water and groundwater quality and hydrology monitoring, aquatic life surveys, wildlife surveys, terrestrial ecosystem and vegetation surveys (including invasive species), wetlands surveys, cultural resources surveys, meteorological monitoring, snow surveys and monitoring, and development rock characterization studies.

The data from these efforts contribute to a fundamental understanding of the natural environment in the project area, including a baseline of environmental conditions. They define an environmental backdrop that Constantine can design around, and one against which Constantine can detect changes, over time, including those that might be related to future project activities.

The environmental baseline effort is described only briefly here but will be described more fully in the forthcoming amendment to this Plan of Operations which will also describe the various management plans that will be designed to protect the environment but are not necessarily part of the Phase I activities.

4.1.1 Surface Water Quality and Quantity Monitoring

Constantine has been performing surface water quality sampling since 2008 from up to 27 stations, and surface water quantity measurements from 14 hydrology stations in the broader Palmer Project area since 2014. Constantine intends to continue surface water sampling at some of these stations, particularly in the Glacier Creek valley. The surface water quality sampling will be discussed in a future amendment to this Plan of Operations when underground advanced exploration will be proposed.

4.1.2 Groundwater Quality and Water Table Monitoring

Constantine has been performing groundwater quality sampling and water level monitoring since 2014. A primary objective of the sampling and monitoring is to predict the character of the water inflow into any future underground excavations, including the development ramp which will be proposed in a future amendment to this Plan of Operations. All groundwater stations that were monitored exhibit generally good water quality. The ground water quality sampling will be discussed in a future amendment to this Plan of Operations when underground advanced exploration will be proposed.

4.1.3 Hydrogeology and Seepage Water Characterization

Constantine has also performed a series of hydrogeology tests in three drill holes as a means of predicting the volume of seepage water inflows that will be encountered during the future underground development program. The results of that work are still being evaluated but will be used as a design criterion for the LAD and water treatment ponds and will be presented in more detail in an amendment to this Plan of Operations.

4.1.4 Storm Water Monitoring

Constantine is doing limited storm water monitoring currently under its SWPPP (APDES Permit Authorization No. AKR10FL42) which is part of its Construction General Permit for Glacier Creek Road construction in past years. The required monitoring is limited to visual monitoring during storm events and BMP inspections. Constantine will be updating the SWPPP to include storm water management and monitoring along the 0.7 mi. road extension being proposed in this Plan of Operations. In accordance with the SWPPP, Constantine will develop a series of water ditches along the side of the access road to convey storm water to uplands or to Glacier Creek. In select locations along the ditches, BMP's including energy dissipation structures and settling pools will be constructed to lower water velocity and encourage settling of suspended solids to reduce turbidity. This will reduce the pollution to from water discharges to Glacier Creek in accordance with the requirements of the CGP. Constantine will perform visual assessments of storm water during storm events and at least quarterly over the life the program.

4.1.5 Development Rock Characterization

Constantine will not be producing any regulated waste rock during the program proposed in this Plan of Operations. However, it will generate waste rock in the future from any underground development activities. As a step toward characterizing potential waste rock Constantine initiated ARD/ML studies using a suite of drill core samples in 2014 and expanded that program to surface samples and additional core samples in 2017. The 2017 program focused on characterizing the ABA characteristics along a likely route for the future underground advanced exploration ramp. The results of that work will be provided in the future in an amendment to this Plan, as part of permitting any underground development.

4.1.6 Aquatic Life Surveys

Constantine initiated aquatic studies using consultant Tetra Tech in 2013, when they performed fish presence surveys along tributaries along the southeast side of Glacier Creek as part of planning for an access road being contemplated at the time. The Glacier Creek access road has since been constructed along the portion of Glacier Creek on BLM lands, and onto Trust Lands. No species of salmon were recorded during sampling efforts on Glacier Creek or any of the 15 Glacier Creek tributaries that were surveyed (Tetra Tech, 2013). In 2014, the ADF&G performed fish studies, also along the Glacier Creek road alignment. They identified 23 drainages that cross the road alignment, including ephemeral and perennial streams, none of which were documented to contain anadromous fish. They did identify Dolly Varden trout in

three of these streams but did not identify any fish in tributaries at or above the road alignment. ADF&G made trips to the site again in 2015 and in 2016 for the purposes of furthering their survey work, using minnow traps, to establish the detailed extent of resident fish, primarily in lower Glacier Creek. Because of that work, ADF&G determined that fish habitat permits were not required for any of the proposed stream crossings (ADFG, 2014) along the road alignment. In addition, ADF&G made a formal submission to modify the Alaska Anadromous Fish Catalog, by moving the upstream extent of Coho salmon presence DOWNSTREAM on Glacier Creek, to an unnamed stream below the washed-out bridge on Porcupine Road. Figure 7 illustrates the extent of resident fish and anadromous fish along lower Glacier Creek.

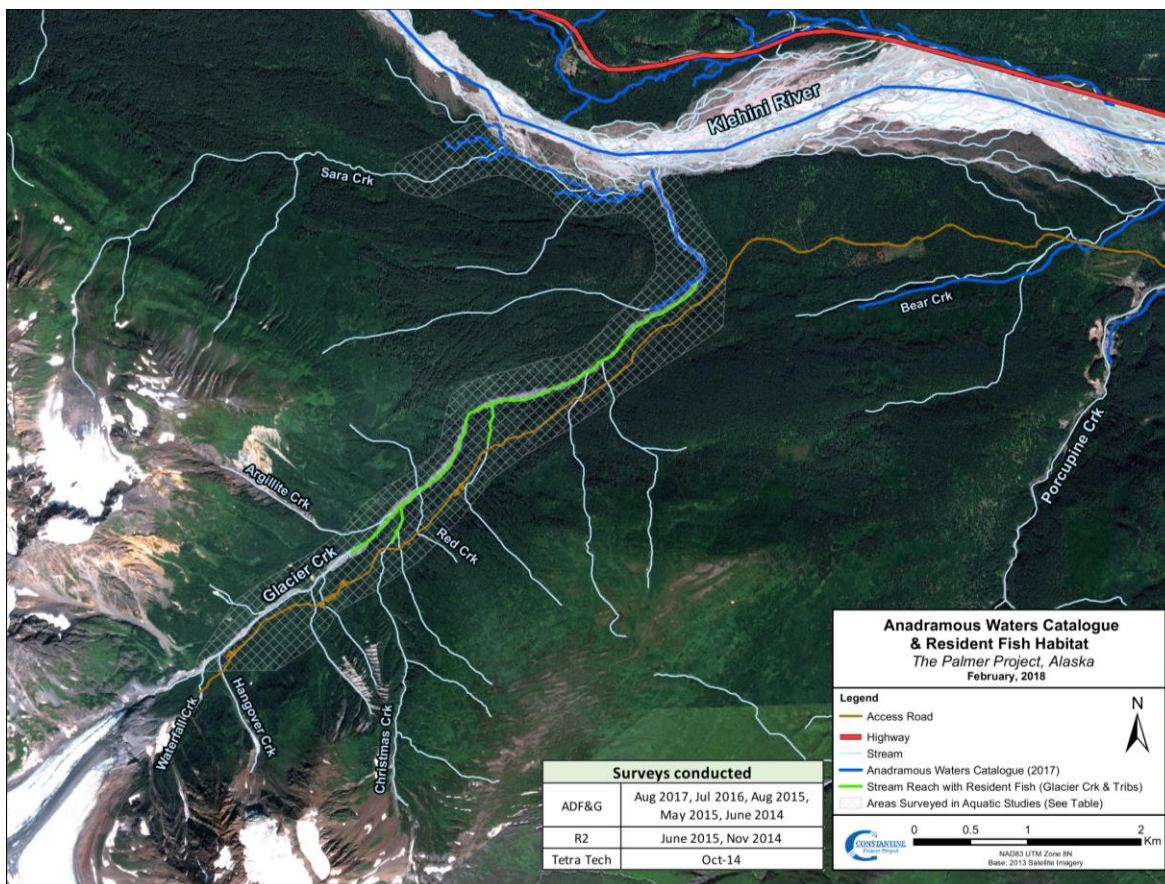


Figure 8 Reach of Anadromous and Resident Fish in Glacier Creek.

In addition to the fish presence surveys, Alaska Department of Fish and Game, Division of Habitat developed an aquatic resources study plan with Constantine to document baseline condition, abundance, and composition of biological communities and sediments in Glacier Creek. Surveys were completed by ADF&G in Glacier Creek during the spring of 2016 and 2017. Surveys included study of the density and community of periphyton and benthic macroinvertebrates,

Dolly Varden char condition and whole-body element concentrations, and sediment composition and element concentrations. (ADF&G, 2016 & 2017)

4.1.7 Wildlife, Terrestrial Ecosystem and Vegetation Surveys

Wildlife and Terrestrial studies were initiated by consultant Hemmera in 2014. Wildlife habitat mapping and assessment for suitability for wildlife species of interest was done and resident species of interest were identified. Bird surveys (song birds and birds of prey) were also completed. Mountain Goat populations in the project area are seasonally surveyed via fixed-wing aircraft (since 2014). Incidental wildlife observations are reported by Palmer Project employees using digital geo-referenced reporting forms. Constantine personnel have identified the following wildlife in the area: black and brown bear, mountain goat, coyote, wolf, red fox, moose, Steller's Jay, Rock Ptarmigan, Belted Kingfisher, Golden Eagle, Red-tailed Hawk, Hoary Marmot and ground squirrels. Constantine intends to continue with seasonal goat surveys. Constantine also has developed an invasive species management plan for the BLM (developed for the portion of the Glacier Creek access road on BLM land) and the entire project will benefit from its implementation regardless of land ownership because the road extension proposed in this plan starts at the end of the existing road (on BLM land).

4.1.8 Wetlands Surveys

Constantine engaged consultant HDR, Inc. to perform wetlands delineation work 2013 including mapping approximately 233 acres of land along a corridor for the then-proposed Glacier Creek access road. That segment of the road was constructed between 2014 and 2017. In 2014 HDR also completed an office-based wetland mapping effort that focused on an area comprised of 55.1 acres situated at the western end of the access road corridor, but no field work was performed. This area was under consideration for a possible road extension. In early 2017 HDR completed office-based wetland delineation of a third area comprising 80.78 acres located adjacent west of the previous mapping areas. They also performed limited field work in 2017 to confirm the desk-top mapping they did previously. This includes the lands that will be disturbed by the activities proposed in the Plan of Operations including the road extension, portal area and settling ponds. There will be no loss of wetlands from the surface construction activities proposed in this Plan of Operations.

4.1.9 Cultural Resources (Archaeological) Surveys

Archeological surveys have been performed within areas of potential disturbance through 2016. The Survey area was expanded in 2017 to include additional areas subject to potential disturbance and includes the area of activity proposed in this Plan of Operations. These surveys conform to the requirements of the National Historic Preservation Act and were performed under the guidelines of the SHPO. No sites were identified.

4.1.10 Meteorological Monitoring

Constantine has engaged consultants Tetra Tech and Ramboll-Environ (current) to analyze meteorological data from two stations in the project area. Precipitation, temperature, solar radiation, wind speed and direction, relative humidity and snow depth data are collected at one station along the existing Glacier Creek access road, and temperature, wind speed and direction data (primarily to assist with avalanche forecasting) are collected from a second station, located on the ridge north of Glacier Creek (South Wall). The station on the access road has been operational since 2014 and the other since 2016. The data are collected in accordance with a QAPP for each station. Monitoring will continue at both station for the foreseeable future.

4.1.11 Snow Surveys and Monitoring

Constantine has engaged several consultants to monitor and characterize the snow conditions that exist seasonally at Palmer. Of primary concern for the project is the risk of snow avalanches, which are a common phenomenon in the Glacier creek valley. Beginning in 2015 Constantine has been integrating baseline information about avalanches, weather and snowpack with the goal of integrating the information into an operational avalanche safety plan that will enable them to implement year-round surface operations safely. The challenge for the project is snow management and working around the avalanche-prone conditions that exist in Glacier Creek valley through the snow-covered months.

These avalanche data were integrated into the general layout and design of surface facilities included in the Plan of Operations including the access road, portal pad, pond locations, avalanche berm and mounds to mitigate impacts from avalanches in the future.

None of the construction activities proposed in this Plan of Operations will occur during the avalanche-prone winter months. Future activities may be.

4.1.12 Socioeconomics

Socioeconomic impacts associated with Constantine's previous access road construction on BLM lands was addressed in the Environmental Assessment (EA) prepared to meet the NEPA requirements of BLM's Plan of Operations approval for BLM lands in 2016 in Glacier Creek. The following is excerpted from that EA.

- The Proposed Action Alternative would not result in appreciable changes to the population and demographics of Haines, the Haines Borough, or Klukwan.
- The Proposed Action Alternative would not result in appreciable change to transportation, the availability of housing, or the burden on community facilities and public services within the Haines Borough and Klukwan.
- Effects on community characteristics and culture as related to subsistence would also be minimal.
- The Proposed Action Alternative would directly and indirectly generate employment opportunities for the duration of the Project.

Though no EA is required for the work proposed in this current plan Constantine believes that the socioeconomic findings of the 2015 EA apply equally as well to the current Plan.

Since its inception in 2006, Constantine has included socioeconomic and community outreach best practices as a priority in their annual activities. This has included stakeholder consultation meetings and site visits, community outreach, educational and workforce development efforts, and a focus on local hiring and shopping. An economic impact study completed for the 2016 activities identified 39 Haines residents working on the Project, with the direct and indirect impact of spending in Haines through wages and other local payments totaling \$1.3 million. These socioeconomic and community outreach best practices will continue to be a priority for the Phase I Plan and for the foreseeable future.

5.0 RECLAMATION PLAN

Project reclamation is regulated by ADNR under 11 AAC 86.800. ADNR also regulates project reclamation and closure planning and the requirement for financial assurances (Reclamation Bonding) under AS 27.19 and 11 AAC 97. Specifically, 11 AAC 97.200 sets certain performance standards for reclamation that requires a site to be reclaimed to a stable condition relative to erosion (after one year) and to naturally revegetate after 5 years. 11 AAC 97.210 addresses the removal of building, debris and structures on state land, including the option of leaving buildings and structures if the surface owner or land manager approves it. Additional requirements for the Reclamation Plan are prescribed in 11 AAC 97.300. Reclamation bonding is regulated under 11 AAC 97.400 and requires posting a personal bond accompanied by a letter of credit, deposit of gold or cash under 11 AAC 97.410. This Plan of Operations includes a Reclamation Plan which meets the State of Alaska regulatory requirements for a reclamation plan. Constantine has prepared reclamation plans for both temporary closure and permanent closure scenarios which are described below.

5.1 Temporary Closure Plan

There may be a situation where Constantine suspends its activities proposed under this Plan of Operations for periods longer than the typical seasonal interruptions. Under any situation where activities at the site will cease for more than one year and for up to three years Constantine would put the site on Temporary Closure status and continue to perform all maintenance, monitoring and reporting tasks that are necessary to protect public health and the environment during the temporary closure. Should Constantine decide to go into Temporary Closure status it will notify ADNR and the Trust within 15 days of making that decision. The Temporary Closure Plan includes the following key components:

- Construction of a barrier to discourage vehicular use of the access road on Trust lands. Barrier will be constructed within 30 days of notifying ADNR and the Trust of the decision to go to care and maintenance status, or by June 15 if that decision is made during the months of October to April. Constantine has already constructed a lockable steel gate at the State/BLM boundary on the Glacier Creek Road and plans to construct a similar gate the Trust/BLM boundary at or before closure. This gate is preferred over the berm option because it would continue to allow the Trust to limit access to the site while allowing access to themselves or other interested parties.
- Compliance with the SWPPP, including visual monitoring after summer storm events and maintenance of storm water BMP's during the snow free months,
- Compliance with the SPCC Plan including monthly visual monitoring and management of fuel storage facility on the Glacier Creek access road, including maintenance of

secondary containment vessels (none of these are on State or Trust lands). This monitoring requirement will not apply whenever all fuel tanks are empty

- Visual monitoring of site roads, laydown and portal pad areas during snow-free months for conditions that may warrant repair or other response.
- Provide an electronic report to the Trust and ADNR for all monitoring by the 15th of the month for the preceding month.

Monitoring activities and frequency during temporary closure are summarized in Table 2. Estimated Temporary Closure costs are summarized in Table 3

Activity	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Storm Events
General site inspection					X	X	X	X	X	X			
SWPPP monitoring					X	X	X	X	X	X			X
Fuel storage monitoring (unless tanks are empty)	X	X	X	X	X	X	X	X	X	X	X	X	
Reporting	X	X	X	X	X	X	X	X	X	X	X	X	

Table 2. Site Monitoring and Reporting Frequencies During Temporary Closure

5.2 Permanent Closure Plan

If Constantine decides to cease activities at the site permanently, it will perform the activities described below:

- Construct a barrier at the Trust land boundary that discourages vehicular traffic on the access road on Trust lands. Constantine has already constructed a lockable steel gate at the State/BLM boundary on the Glacier Creek Road and plans to construct a similar gate at the Trust/BLM boundary at or before closure. This gate is preferred over the berm option because it would continue to allow the Trust to limit access to the site while allowing access to themselves or other interested parties.
- Constantine will be leaving the access road on Trust lands in-place at closure per an understanding with the Trust. It is not known how long the road might remain useable or stable because of the steep terrain and generally unconsolidated nature of the material comprising the hillsides in the area. Constantine is not making any representations that the road will remain useable following their departure at closure.

- Constantine will reclaim the settling ponds by burying the liners in-place, filling in the depressions and recontouring the land surface to discourage ponding of surface runoff. Material required for the work will be repurposed from the starter avalanche berm or another borrow source. The cost estimate includes a CAT, excavator and haul truck for this purpose. The final surface will be reseeded to provide short-term stability from erosion and encourage long-term re-establishment of native plant species. Constantine will consult with the Alaska Plant Materials Research Center to identify the appropriate seed mix to use for initial revegetation on disturbed areas. There is an additional approval process for reclaiming the ponds if the pond embankment(s) qualifies as a jurisdictional dam (s). If it does then the ADNR dam safety unit has a role in issuing a Certificate of Approval to Remove a Dam. Constantine will work with ADNR dam safety to ensure that their regulatory requirements are met in the process of reclaiming the settling ponds.
- The LAD trench will be backfilled. During Phase I, Constantine only intends to excavate the LAD trench and place the loose material in a pile along the trench so that it can eventually be used to backfill the trench after piping is installed in Phase II. As a result, backfilling the trench at the end of Phase I simply requires using an excavator to pull the loose material from the pile back into the trench and then reseeding the disturbed area.
- The entire site (Trust lands) will be cleared of any loose debris and trash. The road will be dressed, if required, to stabilize BMP's so that it may be passable for some time following closure. Constantine has included up to three days of excavator time in the closure cost estimate for final road and facility dressing prior to leaving the site.

5.3 Reclamation Cost Estimates and Financial Assurance

Constantine has developed estimated reclamation costs for both Temporary Closure and Permanent Closure. Constantine intends to post a financial assurance in a form acceptable to the State regulatory agencies after this Plan of Operations and the included Reclamation Plan are approved by the Trust and ADNR, respectively, and prior to initiating any work under this Plan of Operations.

Constantine's estimated cost for the temporary closure is: 1) \$19,140 to install a road barrier and stabilize the site during Temporary Closure, plus 2) \$11,820/year for monitoring for each year that it remains in Temporary Closure status. Assuming a three-year duration, the total cost for Temporary Closure, including indirect costs required by the State, is estimated to be **\$71,427**. At the end of three years Constantine will either negotiate an extension of the Temporary Closure status or permanently reclaim the site in accordance with the Reclamation Plan.

Constantine's estimated cost for the reclamation under a Permanent Closure scenario is **\$155,403** dollars as outlined in the following table and included in the cost estimate in Appendix C. Estimated Temporary and Permanent Reclamation Costs are summarized in Table 3 and 4 respectively.

Temporary Closure - Cost Estimate Summary						
Direct Costs						
One Time Activities	Recurring Activities	Unit Costs	Year 1 Cost	Year 2 Cost	Year 3 Cost	Cummulative 3-Yr. Cost
Direct Costs						
Site Clean-up, Preparation			\$12,180			\$12,180
Construct Access Road Barrier			\$6,960			\$6,960
	Monthly Site Inspection	\$790	\$9,720	\$9,720	\$9,720	\$29,160
	Monthly Reporting	\$175	\$2,100	\$2,100	\$2,100	\$6,300
Direct Cost Subtotal (3-Years)			\$30,960	\$11,820	\$11,820	\$54,600
Indirect Costs						
	Contractor Profit (6% of Direct Costs)					\$3,276
	Contractor Overhead (4% of Direct Costs)					\$2,184
	Performance and Payment Bonds (2.5% of Direct Costs)					\$1,365
	Liability Insurance (1.5% of Labor Costs)					\$174
	Contract Administration (5% of Direct Costs)					\$2,730
	Engineering Redesign (3% of Direct Costs)					\$1,638
	Scope Contingency (6% of Direct Costs)					\$3,276
	Bid Contingency (4% of Direct Costs)					\$2,184
Indirect Costs Subtotal (3-Years)						\$16,827
Total Temporary Closure Costs	Duration 3 Years					\$71,427

Table 3. Temporary Closure Cost Estimate

Permanent Closure- Reclamation Cost Estimate Summary		
Activity		Cost
Direct costs		
	Site Clean-up, Preparation, Reseed	\$20,560
	Reclaim Ponds	\$62,820
	Reclaim LAD Trench	\$11,490
	Construct Road Barrier	\$6,960
	Final Closure Report	\$6,250
	Equipment Mobe and Demobe	\$10,670
Direct Costs Subtotal		\$118,750
Indirect Costs		
	Contractor Profit (6%)	\$7,125
	Contractor Overhead (4%)	\$4,750
	Performance and Payment Bonds (2.5%)	\$2,969
	Liability Insurance (1.5% labor)	\$434
	Contract Administration (5%)	\$5,938
	Engineering Redesign (3%)	\$3,563
	Scope Contingency (6%)	\$7,125
	Bid Contingency (4%)	\$4,750
Indirect Costs Subtotal		\$36,653
Total Permanent Closure Reclamation Costs		\$155,403

Table 4. Permanent Closure - Reclamation Cost Estimate

Appendix A STORM WATER POLLUTION PREVENTION PLAN

Storm Water Pollution Prevention Plan (SWPPP)

PROJECT NAME: Glacier Creek Road, Phase 4

DATE: September 22, 2017

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION 2016 CONSTRUCTION GENERAL PERMIT SWPPP TEMPLATE

Instructions

To help you develop the narrative section of your construction site SWPPP, the DEC has created this electronic SWPPP template, designed to guide you through the SWPPP development process and ensure your SWPPP addresses all the necessary elements stated in the 2016 Construction General Permit (CGP). You should use this template with the *Alaska Storm Water Guide*, available on the ADEC's website at <http://dec.alaska.gov/water/wnpspc/stormwater/docs/AKSWGGuide.pdf>.

This template covers the SWPPP elements required by Alaska's construction general permit; however, **you must customize this template to reflect the conditions at your site.**

Using the SWPPP Template

Each section of this template includes "instructions" and space for "project information." You should read the instructions for each section as you complete the project information. This template was developed in Word so you can easily add tables and additional text. Some sections may require only a brief description while others may require several pages of explanation.

Tips for completing the SWPPP template

If there is more than one construction operator for your project, consider coordinating development of your SWPPP with the other operators. Multiple operators may share the same SWPPP, but make sure responsibilities are clearly described.

Modify this SWPPP template so it meets the needs of your project. Consider adding permit citations in the SWPPP when you address a specific permit requirement.

Storm Water Pollution Prevention Plan For

Glacier Creek Road, Phase 4
Glacier Creek, Haines Borough
Haines, Alaska

Operator(s)

Constantine North, Owner
Darwin Green
P.O. Box 315
Haines, AK 99827
907.766.2057
darwin@constantinemetals.com

Droson Company
Tim Droke (Owner)
P.O. Box 8711
Ketchikan, AK. 99901
907.821.0367 (Telephone)
droson@ak.net

SWPPP Contact(s)

Tim Droke, Droson Company

Allegra Cairns, Constantine North

SWPPP Preparation Date

9/22/2017

Estimated Project Dates

Start of Construction	Completion of Construction
9/29/2017	10/6/2018

APDES Project or Permit Authorization Number:
AHR10FR64

Storm Water Pollution Prevention Plan (SWPPP)

PROJECT NAME: Glacier Creek Road, Phase 4

DATE: September 22, 2017

RECORD OF SWPPP AMENDMENTS

[illegible]

OPERATOR PLAN AUTHORIZATION/CERTIFICATION/DELEGATION

(To be signed by Responsible Corporate Officer)

I state that based on my review this SWPPP meets the minimum requirements of the Construction General Permit and that the Constantine North has day-to-day operational control of the project site. **Droson Company** is responsible for the maintenance and implementation of the SWPPP including inspections, documentation, and application of the Best Management Practices at the site. Droson Company will notify all subcontractors of the requirement of this SWPPP. Droson Company has operational control over the project specifications, including the ability to make changes to the project specifications.

I hereby designate Tim Droke, Droson Company and/or Allegra Cairns, Constantine North, SWPPP Administrator as my authorized representative. This designee is responsible for the overall operations of the site and will be responsible for the implementation of the Storm Water Pollution Prevention Plan, compliance with the Construction General Permit, selecting and implementing additional Best Management Practices as conditions warrant, and signing all inspection reports required.

I certify under penalty of law that this document and all attachments were prepared under direction of Constantine North in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Constantine North

Signature

Darwin Green

Printed Name

Date

Title

Storm Water Pollution Prevention Plan (SWPPP)

PROJECT NAME: Glacier Creek Road, Phase 4

DATE: September 22, 2017

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APPENDICES

Storm Water Pollution Prevention Plan (SWPPP)

PROJECT NAME: Glacier Creek Road, Phase 4

DATE: September 22, 2017

- A. Site Maps and Drawings
- B. BMP Details
- C. Project Schedule
- D. Supporting Documentation:
 - TMDLs
 - Endangered Species
 - Other Permits or Requirements
- E. Delegation of Authority, Subcontractor Certifications
- F. Permit Conditions:
 - Copy of Signed Notice of Intent
 - Copy of Letter from ADEC Authorizing Coverage, with ADEC NOI Tracking Number
 - Copy of 2016 Construction General Permit
- G. Grading and Stabilization Records
- H. Monitoring Plan (If Applicable) and Reports
- I. Training Records
- J. Corrective Action Log
- K. Inspection Records

Storm Water Pollution Prevention Plan (SWPPP)

PROJECT NAME: Glacier Creek Road, Phase 4

DATE: September 22, 2017

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Storm Water Pollution Prevention Plan (SWPPP)

PROJECT NAME: Glacier Creek Road, Phase 4

DATE: September 22, 2017

1.0 PERMITTEE (5.3.1)

Identify permittee and any subcontractors.

1.1 Operator(s)/Contractor(s)

Operator Information			
Organization: Droson Company		Name: Tim Droke	Title: SWPPP Manager
Phone: 907.821.0367	Fax (optional): Enter Text	Email: droson@ak.net	
Mailing Address:	Street (PO Box): P.O. Box 8711		
	City: Ketchikan	State: AK	Zip: 99901
Area of Control	Day-to-day operational control of those activities at a site which are necessary to ensure compliance with a SWPPP or other permit conditions.		

Owner Information			
Organization: Constantine North		Name: Darwin Green	Title: VP Exploration
Phone: 907.766.2057	Fax (optional): Enter Text	Email: darwin@constantinemetals.com	
Mailing Address:	Street (PO Box): P.O. Box 315		
	City: Haines	State: AK	Zip: 99827
Area of Control	Operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications.		

Repeat as necessary.

1.2 Subcontractors

Subcontractor Information			
Organization: Southeast Roadbuilders, Inc		Name: Roger Schnabel	Title: President
Phone: 907.766.2833	Fax (optional): 907.766.2832	Email: roger@seroad.com	
Mailing Address:	Street (PO Box): HC60 Box 4800		
	City: Haines	State: AK	Zip: 99827
Area of Control	Furnish manpower and equipment to complete project		

Repeat as necessary to include all subcontractors.

2.0 STORM WATER CONTACTS (5.3.2)

Identify the qualified persons responsible for the following required positions (note: a small project may have all these responsibilities carried out by one person):

- Storm Water Lead (5.3.2); person updating the SWPPP (5.3.2.2); Person(s) Conducting Inspections (5.3.2.3); Person(s) Conducting Monitoring (if applicable, 5.3.2.4), and Person(s) Operating Active Treatment System (if applicable, 5.3.2.5).
- Document that the named individuals are Qualified Persons as described in CGP Appendix C. Include documentation of qualifications in Appendix E of the SWPPP.

<u>Qualified Personnel</u>	<u>Responsibility</u>
Storm Water Lead Droson Company Tim Droke P.O. Box 8711 Ketchikan, AK 99901 907.821.0367 droson@ak.net	Authority to stop and/or modify construction activities as necessary to comply with the SWPPP and the terms and conditions of the permit.
SWPPP Preparer Droson Company Tim Droke P.O. Box 8711 Ketchikan, AK 99901 907.821.0367 droson@ak.net	Possess the skills to assess conditions at the construction site that could impact storm water quality. Familiar with Part 5 as a means to implement the permit.
Storm Water Inspector Same as Storm Water Lead Alternate: Allegra Cairns	Assess conditions at the construction site that could impact storm water quality. Assess the effectiveness of any erosion and sediment control measures selected to control the quality of storm water discharge, and familiar with Part 6 as a means to ensure compliance with the permit.
Monitoring Person (If Applicable) Monitoring is not expected on this project	Knowledgeable in the principles and practices of water quality monitoring who is familiar with Part 7 and the monitoring plan for the site and how to conduct water quality sampling, testing, and reporting.
Active Treatment System Operator (If Applicable) Active treatment is not expected on the project.	Knowledgeable in the principles and practices of treatment systems that employs chemical coagulation, chemical flocculation or electrocoagulation to aid in the treatment of storm water runoff. Familiar with Part 4.5 as a means to implement and comply with the permit.

3.0 PROJECT INFORMATION (5.3.3)

This section gathers all relevant site data together to assist with filing for permit coverage.

3.1 Project Information

Project Name: Glacier Creek Road, Phase 4			
Location Address:	Street:	Borough or similar government subdivision:	
	Mile 10 Porcupine Road	Haines	
	City:	State:	Zip:
	Haines	Alaska	99827
	Latitude (decimal degree, 5 places): 59.387761	Longitude (decimal degree, 5 places): -136.369898	
Determined By: <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Web Map: Enter Text <input type="checkbox"/> USGS Topo Map, Scale: Enter Text <input type="checkbox"/> Other: Enter Text			

3.2 Project Site Specific Conditions (5.3.3)

Instructions:

Briefly describe the existing site conditions, including:

- Mean annual precipitation based on nearest appropriate weather station (5.3.3.1). Precipitation data for Alaska weather-recording stations are available at the Western Regional Climate Center Internet website: <http://www.wrcc.dri.edu/summary/Climsmak.html>.
- Soils, topography, drainage patterns, approximate growing season, and vegetation.
- Evidence of site contamination.

Mean annual precipitation based on nearest weather stations (inches): 47.67

Soil Type(s) and Slopes (*describe soil type(s) and current slopes; note any changes due to grading or fill activities*): Soils – Krubate Gravelly Sandy Loam, slopes 5 to 20% stony. Minor slope changes due to construction.

Landscape Topography: Project is located within slopes of 5 to 15% with occasional 20 to 25% slope. Newly constructed road will have grades held to 15%.

Drainage Patterns (*describe current drainage patterns and note any changes due to grading or fill activities*): Existing drainage pattern is mostly Southeast to Northwest in flows. Project will convey all encountered streams in existing directions. Only possible new pattern of drainage would be due to cut banks weeping new sources of drainage, these sources would be conveyed to culverts.

Approximate Growing Season: According to the regional Supplement to the Corps of Engineers Wetland Delineation Manual, growing season for this area is April 29th through September 28th

Type of Existing Vegetation: Sitka Alder shrub.

Historic site contamination evident from existing site features and known past usage of the site: No historic contamination was observed in the project area.

4.0 NATURE OF CONSTRUCTION ACTIVITY (5.3.4)

4.1 Scope of Work

Describe the general scope of work for the project, major phases of construction, etc.

New construction of a single lane road, with pull outs for passing. One 108in. arch pipe, one 96in. arch pipe and two 18in. culverts will be installed.

4.2 Project Function (5.3.4.1)

Briefly describe the function of the construction activity (e.g., low-density residential, shopping mall, subdivision, airport, highway, etc.).

Access road for exploration work.

4.3 Support Activities (As Applicable)

Support activities for this project are:

Support Activity	Location	Dedicated	
		Yes	No
Concrete Batch Plant	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Asphalt Batch Plant	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Equipment Staging Yards	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Storage Areas	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavated Material Disposal Areas	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Borrow Areas	Shown on project maps.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.4 Sequence and Timing of Soil-disturbing Activities (5.3.4.2)

Briefly describe the intended sequence and timing of activities that disturb soils at the site.

Clearing and grubbing of existing Sitka Alder Shrub within the boundaries of the road prism will disturb the soils. Overlaying organic layer varies from just a few inches thick to approximately one foot. Road prism shaping shall follow immediately behind the clearing and grubbing.

4.5 Size of property and total area expected to be disturbed (5.3.4.3)

- Estimate the area to be disturbed by excavation,
- grading, or other construction activities, including support activities described in CGP Section 1.4.2.3 (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and/or borrow areas).
- Calculate the percentage of impervious surface area before and after construction.
- Calculate the run-off coefficients before and after construction.

The following are estimates of the construction site:

Total Project Area:.....	3.44	acres
--------------------------	------	-------

Storm Water Pollution Prevention Plan (SWPPP)

PROJECT NAME: Glacier Creek Road, Phase 4

DATE: September 22, 2017

Construction-site area to be disturbed:	1.56	acres
Percentage impervious area BEFORE construction:.....	8	%
Runoff coefficient BEFORE construction:	0.12	
Percentage impervious area AFTER construction:	12	%
Runoff coefficient AFTER construction:.....	0.18	

4.6 Identification of All Potential Pollutant Sources (5.3.4.5)

- Identify and list all potential sources of sediment from construction materials and activities which may affect the quality of storm water discharges from the construction site.
- Identify and list all potential sources of pollution, other than sediment, from construction materials and activities which may affect the quality of storm water discharges from the construction site.

Potential sources of sediment to storm water runoff:

The potential sources of sediment stem from clearing and grubbing the road prism, installation of drainage structures and ditch construction.

Potential pollutants and sources, other than sediment, to storm water runoff:

Insert Text or use Table below

Trade Name Material	Storm Water Pollutants	Location
Diesel Fuel	Petroleum distillate	Equipment, storage tank, fuel truck(s)
Gasoline	Benzene, ethyl benzene, MTBE	Vehicles, portable jugs
Anti-freeze	Ethylene glycol, propylene glycol	Powered equipment, vehicles
Lubricants/grease	Paraffinic/petroleum distillates	Equipment / vehicles
Engines oils	Zinc ditiophosphate	Equipment / vehicles
Hydraulic oils	Oil	Equipment / vehicles

5.0 SITE MAPS (5.3.5)

The SWPPP must include a legible site map (or set of maps for large projects) showing the entire site and identifying the following site-specific information:

- North arrow
- Property boundaries
- Locations where earth-disturbing activities will occur, noting phasing
- Location of areas that will not be disturbed and natural features to be preserved
- Location of all storm water conveyances including ditches, pipes, and swales
- Locations of storm water inlets and outfalls, with a unique identification code for each outfall
- Locations where storm water and/or authorized non-storm water discharges to waters of the U.S. (including wetlands) or a Municipal Separate Storm Sewer System (MS4).
- Direction of storm water flow and approximate slopes anticipated after grading activities
- Locations where control measures will be or have been installed
- Locations where exposed soils will be or have been stabilized
- Locations where post-construction storm water controls will be or have been installed
- Locations of support activities
- Locations where authorized non-storm water will be used
- Locations and sources of run-on to the site from adjacent property that may contain quantities of pollutants which could be exposed to precipitation.
- Locations of all waters of the U.S. on-site (including significant wetland areas $\geq 10,000 \text{ ft}^2$) and those within 2,500 feet of the site boundary
- Location of existing public water system (PWS) drinking water protection areas (DWPA) for PWS sources (e.g., springs, wells, or surface water intakes) that intersect the boundary of the project area. *(The DWPA's can be found using the interactive web map application, "Alaska DEC Drinking Water Protection Areas" located at <http://dec.alaska.gov/das/GIS/apps.htm>.)*
- Sampling point(s), if applicable
- Areas where final stabilization has been accomplished
- Staging and material storage areas (construction materials, hazardous materials, fuels, etc.)
- Dumpsters
- Porta-potties
- Concrete, paint, or stucco washout areas
- Stabilized construction exits

Include a general location map in Appendix A of this SWPPP.

Include site maps in Appendix A of this SWPPP.

6.0 DISCHARGES

Subject to compliance with the terms and conditions of the 2016 CGP, the permittee is authorized to discharge pollutants in storm water discharges from the site. If the permittee is eligible for coverage under this permit and does not comply with the requirements of this general permit, the permittee may be in violation of this general permit for otherwise eligible discharges.

Instructions:

- Describe and identify the location of any storm water discharge associated with support activities, including discharges from dedicated asphalt and concrete plants covered by this permit (5.3.8).
- Identify all allowable sources of non-storm water discharges to be used at the site (5.3.9).

6.1 Locations of Other Industrial Storm Water Discharges (5.3.8)

Project does not require any support activities.

6.2 Allowable Non-Storm Water Discharges (1.4.3; 4.3.7; 5.3.9)

Use of allowable non-storm water is not anticipated for this project.

7.0 DOCUMENTATION OF PERMIT ELIGIBILITY RELATED TO TOTAL MAXIMUM DAILY LOADS (3.2, 5.6)

If the permittee is discharging into a water body with an EPA-established or approved Total Maximum Daily Load (TMDL), the permittee must implement measures to ensure the discharge of pollutants from the site is consistent with the assumptions and requirements of the TMDL. Refer to the 2016 CGP for additional requirements.

The SWPPP must include documentation supporting a determination of permit eligibility with regard to waters that have a TMDL.

7.1 Identify Receiving Waters (5.3.3.3)

Instructions:

- List any water bodies that would receive storm water from the site, including rivers, streams, lakes, coastal waters, and wetlands. Describe each as clearly as possible (e.g., Noyes Slough, a tributary to the Chena River, etc.).
- Indicate location of all water bodies on site map.
- Note any stream crossings, if applicable.
- List storm sewer and/or drainage systems into which storm water from the site could discharge and water body(ies) the system(s) ultimately discharge to.

Description of receiving waters: Glacier Creek a tributary to the Klehini River, thence Chilkat River, thence Chilkat Inlet, thence Lynn Canal and then into the Pacific Ocean.

Description of storm sewer and/or drainage systems: N/A

Other: N/A

7.2 Identify TMDLs (5.6.1)

Determine whether the project may discharge into a water body with an EPA-established or approved Total Maximum Load (TMDL) for turbidity or sediment.

Instructions:

- See ADEC web site for a listing of impaired water bodies: <http://www.dec.state.ak.us/water/wqsar>. Browse under "Resources" for latest list of "Alaska's Impaired Waters."
- Look through all impaired water body categories -- 4a, 4b, and 5.

Is an EPA-established or approved TMDL published for the receiving water(s) listed in Section 7.1? ☐ Yes ☒ No.

If YES, list the TMDL(s) here. Include a summary of consultations with state or federal TMDL authorities. Include correspondence or other supporting documentation in Appendix D.

TMDL: Insert Text

Summary of consultation with state or federal TMDL authorities (5.6.2): Insert Text

Measures taken to ensure compliance with TMDL (5.6.3): Insert Text

8.0 DOCUMENTATION OF PERMIT ELIGIBILITY RELATED TO ENDANGERED SPECIES (3.3, 5.7)

The SWPPP must include documentation supporting a determination of permit compliance with regard to the Endangered Species Act.

Instructions:

- Determine whether endangered or threatened species or their critical habitats are on or near your site.
- Attach any correspondence for any stage of the project planning between the USFWS, EPA, National Marine Fisheries Service (NMFS), or others and the permittee regarding listed species and critical habitat, including any notification that delays the permittee's authorization to discharge under this permit (Appendix D).

8.1 Information on Endangered or Threatened Species or Critical Habitat (5.7.1)

Are endangered or threatened species and critical habitats on or near the project area? ☐ Yes ☒ No.

Describe how this determination was made: A desktop analysis and field survey was conducted by Tetra Tech to initiate documentation of base line aquatic conditions for the Palmer Project. Information sources for this survey include the Alaska Department of Fish & Game Anadromous Waters Catalog and the Alaska Freshwater Fish Inventory Database and department records. There are no listed Threatened or Endangered species under the Endangered Species Act in the project area that are within the jurisdiction of the USFWS.

Will species or habitat be adversely affected by storm water discharge? ☐ Yes ☒ No.

Describe the species and/or critical habitat, if species or habitat will be affected by storm water discharge.

Insert Text

Include any agency correspondence in the SWPPP (5.7.4).

Provide summary of necessary measures (5.7.5): Insert Text

9.0 APPLICABLE FEDERAL, STATE, TRIBAL, OR LOCAL REQUIREMENTS (4.15)

A permittee must ensure storm water control measures implemented at the site are consistent with all applicable federal, state, tribal, or local requirements for soil and erosion control and storm water management.

Instructions:

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Describe applicable federal, state, tribal, or local requirements, if any.

The following Federal, State and local requirements will be followed by implementation of this SWPPP for the project;

- 1) 2016 Alaska Construction General Permit
- 2) United States Army Corps of Engineers Nation Wide Permit 14
- 3) Alaska COE District Regional Conditions for 2012 Nation Wide Permit
- 4) United States Department of the Interior, BLM Surface Management Notice BMP's

Control Measures

Instructions:

Describe the Best Management Practices (BMPs) to be implemented to control pollutants in storm water discharges. For each major activity identified:

- Clearly describe appropriate control measures.
- Describe general sequence during the construction process in which the measures will be implemented.
- Describe maintenance and inspection procedures to be undertaken for that specific BMP.
- Include protocols, thresholds, and schedules for cleaning, repairing, and/or replacing damaged or failing BMPs.
- Identify staff responsible for maintaining BMPs. (If your SWPPP is shared by multiple operators, indicate the operator responsible for each BMP.)

Categorize each BMP under one of the following areas of BMP activity as described below:

1. *Minimize disturbed area (preserve native topsoil, phase construction activities) (4.2.2)*
2. *Maintain natural buffer areas (4.2.3)*
3. *Control storm water discharges and flow rates (4.2.5)*
4. *Protect steep slopes (4.2.6)*
5. *Storm drain inlet protection measures (4.3.1)*
6. *Water body protection measures (4.3.2)*
7. *Down-slope sediment controls (4.3.3)*
8. *Stabilized construction vehicle access and exit points (4.3.4)*
9. *Dust generation and track-out from vehicles (4.3.5)*
10. *Soil stockpiles (4.3.6)*
11. *Sediment basins (4.3.8)*
12. *Dewatering (4.4)*
13. *Soil stabilization (4.5)*
14. *Treatment chemicals/Active treatment Systems (4.6)*
15. *Good housekeeping measures (4.8)*
16. *Any additional BMPs*
 - Note the location of each BMP on your site map(s).
 - Any structural BMPs should have design specifications and details referred to in Appendix B.
 - For more information or ideas on BMPs, see the ADEC Alaska Storm Water Guide:
<http://dec.alaska.gov/water/wnpspc/stormwater/Guidance.html>

10.0 CONTROL MEASURES/BEST MANAGEMENT PRACTICES (4.0; 5.3.6)

Use this section to describe the types and locations of control measures and BMPs to be installed and maintained in accordance with Section 4.0 of the CGP.

Describe each control measure and BMP, including installation schedule and maintenance, inspection, and removal requirements. You may include a brief description of each BMP in this section and refer to detailed installation, maintenance, inspection, removal requirements, and manufacturer's specifications to be included in Appendix B.

If a control measure or BMP will be used to comply with more than one element of this section, you do not need to repeat the detailed installation, maintenance, inspection, removal requirements, and manufacturer's

information. For each element, identify the control measure or BMP to be used, and refer to the section or Appendix B where the detailed information is presented.

The person(s) identified in Section 2.0 of this SWPPP will be responsible for ensuring compliance with the installation, maintenance, inspection, and removal of these control measures.

10.1 Minimize Amount of Soil Exposed During Construction Activity (4.2.2)

Instructions:

Describe the areas that will be disturbed with each phase of construction and methods (signs, fences, etc.) you will use to protect those areas that should not be disturbed.

Describe natural features identified and how each will be protected during construction activity.

Describe how topsoil will be preserved.

Clearing and grubbing of the sub-grade will expose the soils. The exposed soils are either capped with a gravel running surface or are seeded. The top soils are a very thin layer and preserving these soils will not be possible.

10.2 Maintain Natural Buffer Areas (4.2.3)

Are stream crossings or waters of the U.S. located within or immediately adjacent to the property? ☒ Yes ☐ No.

If YES, describe the control measures to be implemented to comply with the 2016 CGP Section 4.2.3 (e.g., buffer areas, perimeter controls, etc.)

AK16 – Vegetative buffer strips are a natural BMP at this project site and will be preserved.

10.3 Control Storm Water Discharges and Flow Rates (4.2.5)

Instructions:

Describe control measures to comply with the CGP (e.g., divert storm water around the site, slow down or contain storm water, use of velocity dissipation devices, installing permanent storm water management controls prior to construction of site improvements to the extent practicable, etc.).

BMP Description: Velocity dissipation devices consisting of cobble stones located within the roadside ditches on slopes greater than 10% will slow down or contain storm water, can be implemented, the same type of control could be used at outlets of culverts, if needed.

Installation Schedule: As ditches are constructed and culverts installed.

Maintenance and Inspection: Inspections would be made during normal inspection cycle, and maintenance performed as needed, when needed.

Responsible Staff: Storm water Lead

Repeat as needed.

10.3.1 Protect Steep Slopes (4.2.6)

Will steep slopes be present at the site during construction? ☒ Yes ☐ No.

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If YES, describe control measures to be implemented to comply with CGP Section 4.2.6 (e.g., reduce continuous slope length, divert storm water around slopes, stabilized exposed areas, etc.).

BMP Description: Cutting slopes with a gentle grade and/or benching the cut to reduce height.

Installation Schedule: As the slope is being excavated/formed and stabilize the slope.

Maintenance and Inspection: Maintenance as needed and inspected during the seven day inspection time.

Responsible Staff: Storm water lead

Repeat as needed.

10.4 Storm Water Inlet Protection Measures (4.3.1)

Instructions:

Describe control measures (e.g., filter berms, perimeter controls, temporary diversion dikes, etc.) to be implemented to protect all inlets receiving storm water from the project during the duration of the project.

BMP Description: AK-8 Straw Wattles and cobble stone velocity dissipaters

Installation Schedule: When culverts are installed.

Maintenance and Inspection: Straw Wattles to be cleaned when silt has piled up to one-half the height of the Wattle.

Responsible Staff: Storm water lead

Repeat as needed.

10.5 Water Body Protection Measures (4.3.2)

Instructions:

Describe control measures selected to minimize discharge of sediment prior to entry into water bodies located on or immediately downstream of the site.

BMP Description: AK-8 Straw wattles. AK-16 vegetation buffer, and AK-1

Installation Schedule: IAK-8 as needed. AK-1 is already there

Maintenance and Inspection: During the regular inspection cycle

Responsible Staff: Storm water lead

Repeat as needed.

10.6 Down-Slope Sediment Controls (4.3.3)

Instructions:

Describe sediment controls (e.g., silt fence or temporary diversion dike) for any portion of the down-slope perimeter where storm water will be discharged from disturbed areas of the site.

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BMP Description: AK-16 vegetative buffer and AK-1

Installation Schedule: AK-1 is already there, AK-16 will preserve AK-1

Maintenance and Inspection: During regular inspection

Responsible Staff: Storm water lead

Repeat as needed.

10.7 Stabilized Construction Vehicle Access and Exit Points (4.3.4)

Describe location(s) of vehicle entrance(s) and exit(s), procedures to remove accumulated sediment off-site (i.e., vehicle tracking), and stabilization practices (i.e., stone pads and/or wash racks) to minimize off-site vehicle tracking of sediments and discharges to storm water.

BMP Description: Project is all inclusive

Installation Schedule: Insert text here

Maintenance and Inspection: Insert text here

Responsible Staff: Insert text here

Repeat as needed.

10.8 Dust Generation and Track-Out from Vehicles (4.3.5)

Describe control measures to minimize the generation of dust and off-site vehicle tracking of sediment.

BMP Description: Project is all inclusive

Installation Schedule: Insert text here

Maintenance and Inspection: Insert text here

Responsible Staff: Insert text here

Repeat as needed.

10.9 Soil Stockpiles (4.3.6)

Will soil stockpiles be at the site during construction? ☐ Yes ☒ No.

If YES, describe control measures intended to control sediment loss from the stockpiles (e.g., tarps or perimeter straw wattles). Show location(s) of stockpile(s) on site maps.

BMP Description: Insert text here

Installation Schedule: Insert text here

Maintenance and Inspection: Insert text here

Responsible Staff: Insert text here

Repeat as needed.

10.10 Sediment Basins (4.3.8)

Refer to CGP Section 4.3.8 to determine if a sediment basin is required for your site.

Will a sediment basin be required during construction? ☐ Yes, ☒ No.

If YES, provide a brief description of the sediment basin here. Append detailed design information in Appendix B (e.g., calculated volume of runoff from a two-year, 24-hour storm, or other assumptions used to calculate appropriate sediment-basin size). Show location of sediment basin(s) on site maps.

Insert Text

10.11 Dewatering (4.4)

Describe dewatering practices to be implemented if water must be removed from an area so construction activity can continue.

Will dewatering be conducted during construction? ☐ Yes, ☒ No.

Will excavation dewatering be conducted within 1,500 feet of a DEC mapped contaminated site found on the following website? ☐ Yes, ☐ No. <http://www.arcgis.com/home/item.html?id=315240bf84aa0b8272ad1cef3cad3>

If yes to above question, review and comply with the DEC Excavation Dewatering General Permit (AKG002000 <http://dec.alaska.gov/water/wnpspc/stormwater/edhsgp.html>) or most current version, for specific requirements.

Describe control measures to be implemented to comply with dewatering discharges authorized either under the CGP or the DEC Excavation Dewatering general permit requirements.

BMP Description: Insert text here

Installation Schedule: Insert text here

Maintenance and Inspection: Insert text here

Responsible Staff: Insert text here

Repeat as needed.

10.12 Soil Stabilization (4.5, 5.3.6.3)

A permittee must stabilize all disturbed areas of the site to minimize on-site erosion and sedimentation and the resulting discharge of pollutants.

Soil stabilization requirements vary depending on the mean annual precipitation for the site. Refer to CGP Section 4.5 for specific requirements.

Deadline to Initiate Stabilization. Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site or temporarily ceased on any portion of the site and will not resume for a period exceeding:

- Seven (7) calendar days for those areas of the state with a mean annual precipitation of forty (40) inches or greater; or

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- Fourteen (14) calendar days for those areas of the state with a mean annual precipitation less than forty (40) inches.

Note: In the context of this provision, “immediately” means no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased.

Deadline to Complete Temporary Stabilization Activities. As soon as practicable, but no later than 14 calendar days after the initiation of soil stabilization measures consistent with Part 4.5.1.1, the following are required to be completed:

- For vegetative stabilization, all activities necessary to initially seed or plant the area to be stabilized; and/or
- For non-vegetative stabilization, the installation or application of all such non-vegetative measures.

Instructions:

Refer to the Alaska Plant Materials Center’s *A Revegetation Manual for Alaska and Coastal Revegetation & Erosion Control Guide* at <http://plants.alaska.gov> for help in selecting appropriate seed mixes and information on methods for revegetation.

Describe temporary stabilization control measures and sequence of installation.

Describe final stabilization control measures and sequence of installation.

BMP Description: AK-10

☐ Permanent, ☒ Temporary

Installation Schedule: Areas exposed during the time of start and winter shut down will be temporarily seeded. Next spring permanent seeding will take place.

Maintenance and Inspection: Inspection during regular scheduled inspections

Responsible Staff: Storm water lead

Repeat as needed.

10.13 Treatment Chemicals (4.6; 5.3.6.4)

The use of treatment chemicals to reduce erosion from the land or sediment in a storm water discharge is allowed provided all the requirements of CGP Section 4.6 are met.

Will treatment chemicals be used to control erosion and/or sediment during construction? ☐ Yes, ☒ No.

If YES, comply with CGP Section 4.5 and complete the following subsections.

10.13.1 Treatment Chemicals (4.6.1)

Describe what chemicals will be used, including information required by CGP Section 4.6.1.

Insert Text

10.13.2 Treatment Chemical Use Procedures (4.6.2)

Describe training for employees using treatment chemicals at the site. Document this training in either Appendix E (Employee Qualifications) or Appendix G (Training Records).

Insert Text

10.13.3 Application of Treatment Chemicals (4.6.3)

The application of treatment chemicals shall be in combination with appropriate physical control measures to ensure effectiveness of treatment chemical.

Instructions:

Briefly describe treatment chemical application procedures to be used. Append detailed treatment chemical application procedures to this SWPPP in Appendix B.

Insert Text

10.14 Active Treatment System Information (4.6.3.3)

A permittee who uses an Active Treatment System (ATS) as a control measure must submit information required by the ADEC for review at least 14 days prior to start of operation of the ATS at the project. Specific submittal requirements can be found at 4.6.3.

Will an ATS be used as a control measure at the site? ☐ Yes, ☒ No.

If YES, briefly describe the ATS process below and submit information required by CGP Section 4.6.3.3 to the ADEC.

Insert text.

10.15 Good Housekeeping Measures (4.8)

A permittee must design, install, implement, and maintain effective good housekeeping measures to prevent and/or minimize the discharge of pollutants. A permittee must include appropriate measures for any of the following activities at the site.

Consult the ADEC Storm Water Guide or other resources for more information or ideas on BMPs. See also the EPA's National Menu of BMPs at <http://www.epa.gov/npdes/stormwater/menuofbmps>

10.15.1 Washing of Equipment and Vehicles (4.8.1)

Will equipment and vehicle washing and/or wheel wash-down be conducted at the site? ☐ Yes, ☒ No.

If YES, describe the control measures to be implemented to comply with CGP Section 4.8.1.

BMP Description: Insert text here

Installation Schedule: Insert text here

Maintenance and Inspection: Insert text here

Responsible Staff: Insert text here

Repeat as needed.

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10.15.2 Fueling and Maintenance Areas (4.8.2)

Describe equipment/vehicle fueling and maintenance practices to be implemented to control pollutants to storm water (e.g., secondary containment, drip pans, spill kits, etc.).

Describe spill prevention and control measures to be implemented, including ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and control.

Will equipment and vehicle fueling or maintenance be conducted at the site? ☒ Yes, ☐ No.

If YES, describe the control measures to be implemented to comply with CGP Section 4.8.2.

BMP Description: AK-23 Fueling will be done via a 100 gallon portable tank located within the bed of a pickup vehicle.

Installation Schedule: Prior to start of equipment staging and/or operation.

Maintenance and Inspection: Inspection weekly / maintenance as needed

Responsible Staff: Darsie Culbeck, Camp Manager

Repeat as needed.

10.15.3 Washout of Applicators/Containers Used for Paint, Concrete, and Other Materials (4.8.4)

Describe location(s) and controls to minimize the potential for storm water pollution from washout areas for concrete mixers, paint, stucco, etc.

Will washout areas for trucks, applicators, or containers of concrete, paint, or other materials be used at the site? ☐ Yes, ☒ No.

If YES, describe control measures to be implemented to comply with CGP Section 4.8.4.

BMP Description: Insert text here

Installation Schedule: Insert text here

Maintenance and Inspection: Insert text here

Responsible Staff: Insert text here

Repeat as needed.

10.15.4 Fertilizer or Pesticide Use (4.8.5)

Describe fertilizers and/or pesticides expected to be used and/or stored on-site and procedures for storage of materials to minimize exposure of the materials to storm water.

Will fertilizers or pesticides be used at the site? ☐ Yes, ☒ No.

If YES, describe control measures to be implemented to comply with CGP Section 4.8.5.

Material Name: Insert Text

BMP Description: Insert text here

Installation Schedule: Insert text here

Maintenance and Inspection: Insert text here

Responsible Staff: Insert text here

Repeat as needed.

10.16 Spill Notification (4.9)

Describe spill-notification procedures, including relevant federal, state, tribal, and local agency contact information, to be implemented in the event of a leak, spill, or release of hazardous substances or oil that occur at the construction site. Refer to CGP Section 4.9 for permit requirements.

A copy of the SPCC Plan for this facility is included within Appendix D

10.17 Construction and Waste Materials (4.8.6, 5.3.7)

Describe in general terms the type of construction and waste materials expected to be stored at the site, with updates as appropriate, and describe the measures for handling and disposal all wastes generated at the site, including clearing and demolition debris or other waste soils removed from the site, construction and domestic waste, hazardous or toxic waste, and sanitary waste. Refer also to CGP Sections 4.8.3, Staging and Material Storage Areas, and 4.8.6, Storage, Handling, and Disposal of Construction Waste.

No construction and/or waste materials will be generated by this project.

11.0 INSPECTIONS (5.4; 6.0)

- Minimum requirements for the locations and scope of site inspections are described in the 2016 CGP Part 6.4.
- Inspection requirements for linear projects are described in the 2016 CGP Part 6.5.
- The person(s) identified in Section 2.0 will be responsible for conducting inspections. Reference or attach the inspection form to be utilized.
- Describe the frequency inspections will occur at your site, including any correlations to storm frequency and intensity.
- Note that inspection details for particular BMPs should be included in Section 11 or Appendix B.
- Document repairs and maintenance you undertake as a result of your inspections. These actions can be documented in the corrective actions log described in Section 11.3 below.
- See suggested inspection form in Section 11.2.
- Retain inspection records in Appendix K.

11.1 Inspection Schedules (5.4.1.2; 6.1; 6.2)

- Refer to 2016 CGP Part 6.1 for inspection frequency requirements.

- Required inspection frequency is based on mean annual precipitation for the site. Refer to SWPPP section 3.2 for annual precipitation data.
- A permittee may reduce the inspection frequency as described in the 2016 CGP Part 6.2. Document the justification for a reduction in inspection frequency, if applicable.
- Identify dates of winter shutdown, if applicable. Refer to 2016 CGP Appendix C for definitions of Winter Shutdown, Fall Freeze-Up, and Spring Thaw.
- A permittee must allow an authorized representative of ADEC, EPA or the MS4 operator to conduct a site inspection in accordance with the CGP Section 6.6.

Inspection frequency: once every 7 days as per section 6.1.1.3

Justification for reduction in inspection frequency, if applicable: As per 6.2.3

Estimated date of winter shutdown: 15 October

11.2 Inspection Form or Checklist (5.4.1.3; 6.7)

A copy of the inspection form for this project is included in Appendix K

11.3 Corrective Action Procedures (5.4.1.4; 8.0)

Describe actions you will take to repair, replace, and maintain BMPs undertaken based on the inspections and maintenance procedures described above. Include a corrective action log, placed below or as an attachment. This log should describe actions taken, date completed, and note the person who completed the work. Actions related to the findings of inspections should reference the specific inspection report.

Corrective action(s), if needed, to repair and/or replace and maintain any BMP described within this document would follow along these guidelines. After discovery of the need for corrective action, equipment, manpower and/or supplies would be mobilized to the affected BMP and/or area and corrective actions would commence. A thorough investigation into the failure or reason needed for corrective action would start immediately after the corrective action is completed if not before.

Corrective Action Log

Corrective Action Log is included in Appendix K.

11.4 Inspection recordkeeping (5.4.2)

Records will be maintained for a minimum period of at least three (3) years after the permit is terminated.

12.0 MONITORING PLAN (If Applicable) (5.5; 7.0)

12.1 Determination of Need for Monitoring Plan

Use the information collected and presented in Section 7.0 of this SWPPP to help complete this section.

If storm water discharges from the site into a water body with an EPA-established or approved Total Maximum Load (TMDL) for turbidity or sediment, the water body is considered impaired for turbidity or sediment.

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If the receiving water is impaired for turbidity or sediment AND the project disturbance is 20 acres or more, then turbidity must be monitored during duration of disturbance and stabilization.

Instructions:

Answer briefly the following questions and determine whether the project has a monitoring requirement for turbidity.

Is there an EPA-established or approved TMDL for Insert Name of Receiving Water?

Is the receiving water listed as impaired for turbidity and/or sediment? ☐ Yes, ☒ No.

If no, there is no monitoring requirement. If YES, answer the following questions.

What is the acreage of the disturbance in the proposed construction project? Insert Text

Is the disturbed acreage equal to or greater than 20 acres? ☐ Yes, ☐ No.

If no, there is no monitoring requirement. If YES, proceed with monitoring template.

A permittee subject to the monitoring requirements of CGP Part 3.2 is required to collect and analyze storm water discharge samples and document monitoring activities with the procedures described in CGP Part 7.0.

12.2 Monitoring Plan Development

If subject to the monitoring requirements of CGP Part 3.2, the permittee must develop a written site-specific monitoring plan for analytical monitoring that includes all the requirements of CGP Part 7.0 and follows the applicable ADEC Quality Assurance Guide for a Water Quality Monitoring Plan (see http://dec.alaska.gov/water/wqapp/wqapp_index.htm). Most monitoring projects should fall under the Tier 2 Water Quality Monitoring Quality Assurance Project Plan criteria. A *Generic Tier 2 Quality Assurance Project Plan* (http://dec.alaska.gov/water/wqapp/Generic_Tier_2_WQ_QAPP_Rev_1.pdf) has been developed to assist applicants in developing a project specific QA Water Quality Monitoring QA Plan.

Also see the ADEC storm water website (<http://dec.alaska.gov/water/wnpspc/stormwater/index.htm>) for information to use in developing the monitoring plan.

Instructions:

- The monitoring plan must be included as a part of the SWPPP as either an appendix or separate SWPPP section. Appendix H of the SWPPP template may be used for this purpose.
- At a minimum, the SWPPP must document the person(s) responsible for conducting monitoring, schedules to be followed for monitoring, any checklist or form that will be used to record monitoring results, and correct action procedures.

Monitoring schedules (5.5.1.2; 7.3.2): Insert Text

Monitoring form or checklist (5.5.1.3; 7.3.9): Insert Text

Corrective action procedures (5.5.1.4; 8.0): Insert Text

12.3 Monitoring Considerations

This section does not need to be filled out but is a list of reminders for the applicant.

- Locate upstream/upgradient sampling point(s) to determine background turbidity in the receiving water body. The location should be reasonably close to discharge but not so close as to experience increased turbidity from discharge. Clearly mark in field and on map in SWPPP.
- Sample the discharge where it enters the receiving water body or where it leaves the construction site. Clearly mark in field and on map in SWPPP.
- The discharge entering the water body impaired for turbidity or sediment must not exceed 5 nephelometric turbidity units (NTU) above natural conditions when the natural turbidity is 50 NTU or less, and may not have more than a 10-percent increase in turbidity when the natural turbidity is more than 50 NTU, not to exceed a maximum increase of 25 NTU.

IF TURBIDITY EXCEEDS ALLOWABLE LEVELS:

- Correct control measures within seven (7) calendar days, update your SWPPP to reflect improvements, submit a Corrective Action Report consistent with the CGP, AND continue daily sampling until discharge meets allowable turbidity.
- If a specific waste-load allocation has been established for turbidity or sediment that would apply to the discharge of storm water from the construction site, the permittee must implement necessary steps to meet that allocation.
- If there is only a general waste-load allocation applicable to construction storm water discharges, the permittee must consult the ADEC to confirm consistency with approved TMDL.

13.0 POST-AUTHORIZATION RECORDS (5.8)

This section does not have to be filled out but is a list of reminders for the applicant. Refer to CGP 5.8 for additional details.

Copy of Permit Requirements (5.8.1)

The SWPPP must contain the following documents:

- copy of 2016 CGP (5.8.1.1);
- copy or signed and certified NOI form submitted to ADEC (5.8.1.2);
- upon receipt, a copy of letter from ADEC authorizing permit coverage, providing tracking number (5.8.1.3); and

These documents must be included in Appendix F.

13.1 Additional Documentation Requirements (5.8.2)

- Dates when grading activities occur (5.8.2.1; insert in Appendix G).
- Dates when construction activities temporarily or permanently cease on a portion of the site (5.8.2.1.3; insert in Appendix G).

- Dates when stabilization measures are initiated (5.8.2.1.4; insert in Appendix G).
- Date of beginning and ending period for winter shutdown (5.8.2.2; insert in Appendix G).
- Copies of inspection reports (5.4.2; 5.8.2.3; insert in Appendix K).
- Copies of monitoring reports, if applicable (5.8.2.4; insert in Appendix H).
- Documentation in support of chemical-treatment processes (4.6; 5.8.2.6; insert in Appendix H).
- Documentation of maintenance and repairs of control measures (5.8.2.8; 8.1; 8.2; insert in Appendix J).
- Documentation of any rainfall monitoring records (6.7.1.3)

13.1.1 Records of Employee Training (4.14; 5.8.2.7)

Training staff and subcontractors is an effective BMP. Document all training conducted for your staff, those with specific storm water responsibilities (e.g. installing, inspecting, and maintaining BMPs), and subcontractors. Include dates, number of attendees, subjects covered, and length of training.

Describe Training Conducted:

General storm water and BMP awareness training for staff and subcontractors:

Insert Text

Detailed training for staff and subcontractors with specific storm water responsibilities:

Insert Text

Individual(s) Responsible for Training:

Insert Names, Titles, and Contact Numbers here

14.0 MAINTAINING AN UPDATED SWPPP (5.9)

This section does not need to be filled out but is a list of reminders for the applicant.

The permittee must modify the SWPPP, including site map(s), in response to any of the following:

- whenever changes are made to construction plans, control measures, good housekeeping measures, monitoring plan (if applicable), or other activities at the site that are no longer accurately reflected in SWPPP (5.9.1.1);
- if inspections of site investigations by staff or by local, state, tribal, or federal officials determine SWPPP modifications are necessary for permit compliance (5.9.1.2); and
- to reflect any revisions to applicable federal, state, tribal, or local laws that affect control measures implemented at the construction site (5.9.1.3).

14.1 Log of SWPPP Modifications (5.9.2)

A permittee must keep a log showing dates, name of person authorizing the change, and a brief summary of changes for all significant SWPPP modifications (e.g., adding new control measures, changes in project design, or significant storm events that cause replacement of control measures). A form to document SWPPP amendments has been placed at the beginning of this template.

14.2 Deadlines for SWPPP Modifications (5.9.3)

Revisions to the SWPPP must be completed within seven days of the inspection that identified the need for a SWPPP modification or within seven days of substantial modifications to the construction plans or changes in site conditions.

15.0 ADDITIONAL SWPPP REQUIREMENTS (5.10)

This section does not have to be filled out but is a list of reminders for the applicant. Refer to the CGP Part 5.10 for additional detail.

15.1 Retention of SWPPP (5.10.1)

A copy of the SWPPP (including a copy of the permit), NOI, and acknowledgement letter from ADEC must be retained at the construction site.

15.2 Main Entrance Signage (5.10.2)

A sign or other notice must be posted conspicuously near the main entrance of the site. The sign or notice must include a copy of the completed NOI.

15.3 Availability of SWPPP (5.10.3)

The permittee must keep a current copy of the SWPPP at the site. The SWPPP must be made available to subcontractors, government and tribal agencies, and MS4 operators, upon request.

15.4 Signature and Certification (5.10.4)

The SWPPP must be signed and certified in accordance with the requirements of the 2016 CGP Appendix A, Part 1.12. The certification form on page ii of this template meets the requirements of this paragraph.

APPENDICES

APPENDIX A – SITE MAPS AND DRAWINGS

APPENDIX B – BMP DETAILS

APPENDIX C – PROJECT SCHEDULE

APPENDIX D – SUPPORTING DOCUMENTATION:

- TMDL
- ENDANGERED SPECIES
- OTHER PERMITS

APPENDIX E – DELEGATION OF AUTHORITY, SUBCONTRACTOR CERTIFICATIONS

APPENDIX F – PERMIT CONDITIONS:

- COPY OF SIGNED NOTICE OF INTENT
- COPY OF LETTER FROM ADEC AUTHORIZING COVERAGE
- ADEC NOI TRACKING NUMBER
- COPY OF 2016 ALASKA CONSTRUCTION GENERAL PERMIT

APPENDIX G – GRADING AND STABILIZATION RECORDS

APPENDIX H – MONITORING PLAN (IF APPLICABLE) AND REPORTS

APPENDIX I – TRAINING RECORDS

APPENDIX J – CORRECTIVE ACTION LOG

APPENDIX K – INSPECTION RECORDS

Appendix B SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN



U.S. ENVIRONMENTAL PROTECTION AGENCY TIER I QUALIFIED FACILITY SPCC PLAN TEMPLATE

Instructions to Complete this Template

This template is intended to help the owner or operator of a Tier I qualified facility develop a self-certified Spill Prevention, Control, and Countermeasure (SPCC) Plan. To use this template, your facility must meet all of the applicability criteria of a Tier I qualified facility listed under §112.3(g)(1) of the SPCC rule. This template provides every SPCC rule requirement necessary for a Tier I qualified facility, which you must address and implement.

You may use this template to comply with the SPCC regulation or use it as a model and modify it as necessary to meet your facility-specific needs. If you modify the template, your Plan must include a section cross-referencing the location of each applicable requirement of the SPCC rule and you must ensure that your Plan is an equivalent Plan that meets all applicable rule requirements of 40 CFR 112.6(a)(3).

You may complete this template either electronically or by hand on a printed copy. This document is a reformatted version of the template found in Appendix G of 40 CFR part 112.^a No substantive changes have been made. Please note that a "Not Applicable" ("N/A") column has been added to both Table G-10 (General Rule Requirements for Onshore Facilities) and Table G-11 (General Rule Requirements for Onshore Oil Production Facilities). The "N/A" column should help you complete your self-certification when a required rule element does not apply to your facility. Use of the "N/A" column is optional and is not required by rule.

All Tier I qualified facility self-certifiers must complete Sections I, II, and III. Additionally, the owner or operator of an:

- Onshore facility (excluding production) must complete Section A.
- Onshore oil production facility (excluding drilling and workover facilities) must complete Section B.
- Onshore oil drilling and workover facility must complete Section C.

Complete and include with your Plan the appropriate attachments. You should consider printing copies of the attachments for use in implementing the SPCC Plan (e.g. Attachment 3.1 - Inspection Log & Schedule; Attachment 4 - Discharge Notification Form).

To complete the template, check the box next to the requirement to indicate that it has been adequately addressed. Either write "N/A" in the column or check the box under the "N/A" column to indicate those requirements that are not applicable to the facility. Where a section requires a description or listing, write in the spaces provided (or attach additional descriptions if more space is needed).

Below is a key for the colors used in the section headers:

Sections I, II, and III: Required for all Tier I qualified facilities
Section A: Onshore facilities (excluding production)
Section B: Onshore oil production facilities (excluding drilling and workover facilities)
Section C: Onshore oil drilling and workover facilities
Attachments: 1 - Five Year Review and Technical Amendment Logs 2 - Oil Spill Contingency Plan and Checklist 3 - Inspections, Dike Drainage and Personnel Training Logs 4 - Discharge Notification Form

After you have completed all appropriate sections, certify and date your Plan, and then implement it by the compliance date. If your facility was in operation before August 16, 2002, and you do not already have a Plan, then implement this template immediately. Conduct inspections and tests in accordance with the written procedures that you have developed for your facility. You must keep with the SPCC Plan a record of these inspections and tests, signed by the appropriate supervisor or inspector, for a period of three years.

Do not forget to periodically review your Plan (at least once every five years) or to update it when you make changes to your facility. You must prepare amendments within six months of the facility change, and implement them as soon as possible, but not later than six months following preparation of any amendment.

In the event that your facility releases oil to navigable waters or adjoining shorelines, immediately call the National Response Center (NRC) at 1-800-424-8802. The NRC is the federal government's centralized reporting center, which is staffed 24 hours per day by U.S. Coast Guard personnel.

^a Please note that the use of this template is not mandatory for a Tier I qualified facility. You may also meet the SPCC Plan requirement by preparing a satisfactory Tier II qualified facility Plan, preparing a satisfactory Plan that is certified by a Professional Engineer, or by developing an equivalent Plan for a Tier I qualified facility. Further information on the requirements of these methods can be found in 40 CFR part 112.6(a)(1). If you use any of these alternative methods you must include a cross reference in your Plan that shows how the equivalent Plan meets all applicable 40 CFR part 112 requirements.

Tier I Qualified Facility SPCC Plan

This template constitutes the SPCC Plan for the facility, when completed and signed by the owner or operator of a facility that meets the applicability criteria in §112.3(g)(1). This template addresses the requirements of 40 CFR part 112. Maintain a complete copy of the Plan at the facility if the facility is normally attended at least four hours per day, or for a facility attended fewer than four hours per day, at the nearest field office. When making operational changes at a facility that are necessary to comply with the rule requirements, the owner/operator should follow state and local requirements (such as for permitting, design and construction) and obtain professional assistance, as appropriate.

Facility Description

Facility Name	<u>Glacier Creek Laydown</u>		
Facility Address	<u>Mile 10 Porcupine Road; 1.7 miles on Glacier Creek Road [not a mail address]</u>		
City	<u>Haines</u>	State	<u>Alaska</u> ZIP <u>99827</u>
County	<u>Haines Borough</u>	Tel. Number	<u>206-922-2040</u>
Owner or Operator Name	<u>Constantine North, Inc.</u>		
Owner or Operator Address	<u>P. O. Box 315</u>		
City	<u>Haines</u>	State	<u>Alaska</u> ZIP <u>99827</u>
County	<u>Haines Borough</u>	Tel. Number	<u>206-922-2040</u>

I. Self-Certification Statement (§112.6(a)(1))

The owner or operator of a facility certifies that each of the following is true in order to utilize this template to comply with the SPCC requirements:

- I Darwin Green certify that the following is accurate:
1. I am familiar with the applicable requirements of 40 CFR part 112;
 2. I have visited and examined the facility;
 3. This Plan was prepared in accordance with accepted and sound industry practices and standards;
 4. Procedures for required inspections and testing have been established in accordance with industry inspection and testing standards or recommended practices;
 5. I will fully implement the Plan;
 6. This facility meets the following qualification criteria (under §112.3(g)(1)):
 - a. The aggregate aboveground oil storage capacity of the facility is 10,000 U.S. gallons or less; and
 - b. The facility has had no single discharge as described in §112.1(b) exceeding 1,000 U.S. gallons and no two discharges as described in §112.1(b) each exceeding 42 U.S. gallons within any twelve month period in the three years prior to the SPCC Plan self-certification date, or since becoming subject to 40 CFR part 112 if the facility has been in operation for less than three years (not including oil discharges as described in §112.1(b) that are the result of natural disasters, acts of war, or terrorism); and
 - c. There is no individual oil storage container at the facility with an aboveground capacity greater than 5,000 U.S. gallons.
 7. This Plan does not deviate from any requirement of 40 CFR part 112 as allowed by §112.7(a)(2) (environmental equivalence) and §112.7(d) (impracticability of secondary containment) or include any measures pursuant to §112.9(c)(6) for produced water containers and any associated piping;
 8. This Plan and individual(s) responsible for implementing this Plan have the full approval of management and I have committed the necessary resources to fully implement this Plan.

I also understand my other obligations relating to the storage of oil at this facility, including, among others:

1. To report any oil discharge to navigable waters or adjoining shorelines to the appropriate authorities. Notification information is included in this Plan.
2. To review and amend this Plan whenever there is a material change at the facility that affects the potential for an oil discharge, and at least once every five years. Reviews and amendments are recorded in an attached log [See Five Year Review Log and Technical Amendment Log in Attachments 1.1 and 1.2.]
3. Optional use of a contingency plan. A contingency plan:
 - a. May be used in lieu of secondary containment for qualified oil-filled operational equipment, in accordance with the requirements under §112.7(k), and;
 - b. Must be prepared for flowlines and/or intra-facility gathering lines which do not have secondary containment at an oil production facility, and;
 - c. Must include an established and documented inspection or monitoring program; must follow the provisions of 40 CFR part 109; and must include a written commitment of manpower, equipment and materials to expeditiously remove any quantity of oil discharged that may be harmful. If applicable, a copy of the contingency plan and any additional documentation will be attached to this Plan as Attachment 2.

I certify that I have satisfied the requirement to prepare and implement a Plan under §112.3 and all of the requirements under §112.6(a). I certify that the information contained in this Plan is true.

Signature 
 Name Darwin Green

vp, exploration

15-Aug-2017

II. Record of Plan Review and Amendments

Five Year Review (§112.5(b)):

Complete a review and evaluation of this SPCC Plan at least once every five years. As a result of the review, amend this Plan within six months to include more effective prevention and control measures for the facility, if applicable. Implement any SPCC Plan amendment as soon as possible, but no later than six months following Plan amendment. Document completion of the review and evaluation, and complete the Five Year Review Log in Attachment 1.1. If the facility no longer meets Tier I qualified facility eligibility, the owner or operator must revise the Plan to meet Tier II qualified facility requirements, or complete a full PE certified Plan.

Table G-1 Technical Amendments (§§112.5(a), (c) and 112.6(a)(2))

This SPCC Plan will be amended when there is a change in the facility design, construction, operation, or maintenance that materially affects the potential for a discharge to navigable waters or adjoining shorelines. Examples include adding or removing containers, reconstruction, replacement, or installation of piping systems, changes to secondary containment systems, changes in product stored at this facility, or revisions to standard operating procedures.	X <input type="checkbox"/>
Any technical amendments to this Plan will be re-certified in accordance with Section I of this Plan template. [§112.6(a)(2)] [See Technical Amendment Log in Attachment 1.2]	X <input type="checkbox"/>

III. Plan Requirements

1. Oil Storage Containers (§112.7(a)(3)(i)):

Table G-2 Oil Storage Containers and Capacities		
This table includes a complete list of all oil storage containers (aboveground containers ^a and completely buried tanks ^b) with capacity of 55 U.S. gallons or more, unless otherwise exempt from the rule. For mobile/portable containers, an estimated number of containers, types of oil, and anticipated capacities are provided.		X <input type="checkbox"/>
Oil Storage Container <i>(indicate whether aboveground (A) or completely buried (B))</i>	Type of Oil	Shell Capacity (gallons)
A Horizontal cylindrical steel-walled tank on reinforced wood frame	diesel no 2	5,000
A Horizontal cylindrical steel-walled tank on reinforced wood frame	Jet-A 50 (helicopter fuel)	3,000
A 10 x 70G steel fly tanks (portable)	diesel no 2	10 x 70 = 700
A 1,000G double walled horizontal steel tank	diesel no 2	1,000
Total Aboveground Storage Capacity ^c		9,700 gallons
Total Completely Buried Storage Capacity		0 gallons
Facility Total Oil Storage Capacity		9,700 gallons

^a Aboveground storage containers that must be included when calculating total facility oil storage capacity include: tanks and mobile or portable containers; oil-filled operational equipment (e.g. transformers); other oil-filled equipment, such as flow-through process equipment. Exempt containers that are not included in the capacity calculation include: any container with a storage capacity of less than 55 gallons of oil; containers used exclusively for wastewater treatment; permanently closed containers; motive power containers; hot-mix asphalt containers; heating oil containers used solely at a single-family residence; and pesticide application equipment or related mix containers.

^b Although the criteria to determine eligibility for qualified facilities focuses on the aboveground oil storage containers at the facility, the completely buried tanks at a qualified facility are still subject to the rule requirements and must be addressed in the template; however, they are not counted toward the qualified facility applicability threshold.

^c Counts toward qualified facility applicability threshold.

2. Secondary Containment and Oil Spill Control (§§112.6(a)(3)(i) and (ii), 112.7(c) and 112.9(c)(2)):

Table G-3 Secondary Containment and Oil Spill Control	
Appropriate secondary containment and/or diversionary structures or equipment ^a is provided for all oil handling containers, equipment, and transfer areas to prevent a discharge to navigable waters or adjoining shorelines. The entire secondary containment system, including walls and floor, is capable of containing oil and is constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs.	X <input type="checkbox"/>

^a Use one of the following methods of secondary containment or its equivalent: (1) Dikes, berms, or retaining walls sufficiently impervious to contain oil; (2) Curbing; (3) Culverting, gutters, or other drainage systems; (4) Weirs, booms, or other barriers; (5) Spill diversion ponds; (6) Retention ponds; or (7) Sorbent materials.

Table G-4 below identifies the tanks and containers at the facility with the potential for an oil discharge; the mode of failure; the flow direction and potential quantity of the discharge; and the secondary containment method and containment capacity that is provided.

Table G-4 Containers with Potential for an Oil Discharge					
Area	Type of failure (discharge scenario)	Potential discharge volume (gallons)	Direction of flow for uncontained discharge	Secondary containment method ^a	Secondary containment capacity (gallons)
<i>Bulk Storage Containers and Mobile/Portable Containers^b</i>					
5000g horizontal cylindrical steel-walled tank on reinforced wood frame	overfilling; leaking seams, welds, or cracks; rupture or piercing from impact of falling equipment, leaky fuel lines	<1 to 5000	SE to soil, gravel	L1023 Urethane liner containment	11,749
3000g horizontal cylindrical steel-walled tank on reinforced wood frame	overfilling; leaking seams, welds, or cracks; rupture or piercing from impact of falling equipment, leaky fuel lines	<1 to 3000	SE to soil, gravel	L1023 Urethane liner containment	11,749
10 x 70g steel fly tanks	overfilling; failed seams, joints; leaking valve; leaky fuel lines	<1 to 70	SE to soil, gravel	welded double wall metal containment	81 each
1000G double-walled horizontal steel tank on reinforced wood frame	overfilling; leaking seams, welds or cracks; impact of falling equipment; leaky fuel lines	<1 to 1,000	SE to soil, gravel	double walled and L1023 Urethane liner containment	11,749
<i>Oil-filled Operational Equipment (e.g., hydraulic equipment, transformers)^c</i>					
NA					
<i>Piping, Valves, etc.</i>					
NA					
<i>Product Transfer Areas (location where oil is loaded to or from a container, pipe or other piece of equipment.)</i>					
NA					
<i>Other Oil-Handling Areas or Oil-Filled Equipment (e.g. flow-through process vessels at an oil production facility)</i>					
NA					

^a Use one of the following methods of secondary containment or its equivalent: (1) Dikes, berms, or retaining walls sufficiently impervious to contain oil; (2) Curbing; (3) Culverting, gutters, or other drainage systems; (4) Weirs, booms, or other barriers; (5) Spill diversion ponds; (6) Retention ponds; or (7) Sorbent materials.

^b For storage tanks and bulk storage containers, the secondary containment capacity must be at least the capacity of the largest container plus additional capacity to contain rainfall or other precipitation.

^c For oil-filled operational equipment: Document in the table above if alternative measures to secondary containment (as described in §112.7(k)) are implemented at the facility.

3. Inspections, Testing, Recordkeeping and Personnel Training (§§112.7(e) and (f), 112.8(c)(6) and (d)(4), 112.9(c)(3), 112.12(c)(6) and (d)(4)):

Table G-5 Inspections, Testing, Recordkeeping and Personnel Training	
An inspection and/or testing program is implemented for all aboveground bulk storage containers and piping at this facility. [§§112.8(c)(6) and (d)(4), 112.9(c)(3), 112.12(c)(6) and (d)(4)]	X <input type="checkbox"/>
<p>The following is a description of the inspection and/or testing program (e.g. reference to industry standard utilized, scope, frequency, method of inspection or test, and person conducting the inspection) for all aboveground bulk storage containers and piping at this facility:</p> <p>1. Training Selected project personnel complete documented task-training in fuel handling, fuel storage, and fuel transferring procedures at least once a year. This includes training in visual inspections of fuel containers (per procedures and schedules in Attachments 3.1 and 3.2). Personnel new to the project must complete the same training before they are authorized to carry-out any fuel-related tasks.</p> <p>2. Fuel Level Monitoring Fuel storage containers are visually checked weekly (or more frequently, as required) by an assigned worker either with a dip-stick or by viewing the liquid level through the fill. Fuel levels (and volumes) are also checked in the same manner before storage tanks are re-filled.</p> <p>3. Dispensing Equipment On a weekly basis, an assigned and qualified worker visually inspects all tanks, couplings, valves, fittings, filter housings, nozzles, and other fittings for signs of deterioration, damage, or leakage.</p> <p>4. Containments On a weekly basis, an assigned worker conducts inspections of containments checking for signs of damage, deterioration, discharge, or fuel accumulation. Also, an assigned worker will inspect the containment after heavy rainfalls.</p> <p>5) Spill Response An assigned worker inspects spill kits weekly to check equipment serviceability and ensure that kits are fully stocked.</p>	
Inspections, tests, and records are conducted in accordance with written procedures developed for the facility. Records of inspections and tests kept under usual and customary business practices will suffice for purposes of this paragraph. [§112.7(e)]	X <input type="checkbox"/>
A record of the inspections and tests are kept at the facility or with the SPCC Plan for a period of three years. [§112.7(e)] [See Inspection Log and Schedule in Attachment 3.1]	X <input type="checkbox"/>
Inspections and tests are signed by the appropriate supervisor or inspector. [§112.7(e)]	X <input type="checkbox"/>
Personnel, training, and discharge prevention procedures [§112.7(f)]	
Oil-handling personnel are trained in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan. [§112.7(f)]	X <input type="checkbox"/>
A person who reports to facility management is designated and accountable for discharge prevention. [§112.7(f)]	X <input type="checkbox"/>
Name/Title: <u>Camp Manager (Darsie Culbeck, or designated alternate)</u>	
Discharge prevention briefings are conducted for oil-handling personnel annually to assure adequate understanding of the SPCC Plan for that facility. Such briefings highlight and describe past reportable discharges or failures, malfunctioning components, and any recently developed precautionary measures. [§112.7(f)] [See Oil-handling Personnel Training and Briefing Log in Attachment 3.4]	X <input type="checkbox"/>

4. Security (excluding oil production facilities) §112.7(g):

Table G-6 Implementation and Description of Security Measures	
Security measures are implemented at this facility to prevent unauthorized access to oil handling, processing, and storage area.	X <input type="checkbox"/>
<p>The following is a description of how you secure and control access to the oil handling, processing and storage areas; secure master flow and drain valves; prevent unauthorized access to starter controls on oil pumps; secure out-of-service and loading/unloading connections of oil pipelines; address the appropriateness of security lighting to both prevent acts of vandalism and assist in the discovery of oil discharges:</p> <ol style="list-style-type: none"> 1. This facility (Glacier Creek Laydown) is a non-commercial, seasonally-operated laydown on BLM land located 11.7 miles off the Haines Highway (AK Hwy 7) on a newly built road extending from the end (mile 10) of Porcupine Creek Road. During the exploration season (May-September) the project is active 24 hours a day. Acts of vandalism and fuel theft have not been documented in this area. 2. Only authorized vehicles are allowed into camp to drive on the newly built road which is gated and locked. 3. Fuel storage tanks are located 1.7 miles from the locked gate and are not visible from the public road. 4. Power chords for electric pumps are removed and locked up nightly, and nozzles are locked, preventing unauthorized use over night. 5. Cameras monitoring the fuel tanks have been installed to act as a deterrent and if necessary, to identify perpetrators. 6. All fuel storage tanks are either double walled steel tanks or are steel tanks stored with containment berms. 7. In the off-season, the larger fuel tanks (Jet-A, diesel) are drained or pumped out, and any fly tanks or drums with fuel are removed from the site. No fuel is stored at this facility during the off-season. 	

5. Emergency Procedures and Notifications (§112.7(a)(3)(iv) and 112.7(a)(5)):

Table G-7 Description of Emergency Procedures and Notifications
(see next page)

The following is a description of the immediate actions to be taken by facility personnel in the event of a discharge to navigable waters or adjoining shorelines [§ 112.7(a)(3)(iv) and 112.7(a)(5)]:

1. Protect personnel by moving them away from spill and turning off engines and extinguish all sources of ignition.
2. **IF SAFE TO DO SO**, immediately stop the release of fuel. Close all valves, plug or kink any ruptured line, and shut off pumps.
3. Notify **Project Manager (or acting Manager)** management. Inform that person of the location, scope of spill, and type of fuel or oil spilled.
4. Take immediate measures using properly protected personnel to contain the spill using sorbent booms, rolls of sorbent, soil, snow or other appropriate mechanisms and equipment. Apply sorbent directly to recover liquid product; place used sorbents in an approved container (open top drum) for proper disposal. Drums, bags of sorbents, and other containers will be labeled with date, person, type of contaminant, and type of contaminated material.
5. Document the incident, including but not limited to: (1) date, time, location, (2) volume spilled, (3) what the spill was to (soil, snow, stream, containment etc), (4) the effected volume (if applicable), (5) the response actions taken, (6) the person(s) and equipment at site involved in the spill and response, (7) estimated volume of contaminated material, and number and nature of the containers use, (9) the method(s) for storing contaminated material and the plan (or steps taken) to remove and dispose of the material

In addition to the spill response procedures outlined above, **Project Manager (or acting Manager)** will notify ADEC and the BLM:

(1) **as soon as the person has knowledge of a**

- (A) discharge or release of a hazardous substance other than fuel;
- (B) discharge or release of fuel to water; or
- (C) discharge or release, including a cumulative discharge or release, of fuel in excess of 55 gallons solely to land outside an impermeable secondary containment area or structure; and

(2) **within 48 hours** after the person has knowledge of a discharge or release, including a cumulative discharge, of fuel solely to land

- (A) in excess of 10 gallons, but 55 gallons or less; or
- (B) in excess of 55 gallons, if the discharge or release is the result of the escape or release of oil from its original storage tank, pipeline, or other immediate container into an impermeable secondary containment area or structure.

6. Contact List (§112.7(a)(3)(vi)):

Table G-8 Contact List	
Contact Organization / Person	Telephone Number
National Response Center (NRC)	1-800-424-8802
Cleanup Contractor(s) Delta Western (Haines, Alaska)	907-766-3190
Key Facility Personnel	
Designated Person Accountable for Discharge Prevention: Camp Manager (Darsie Culbeck or designated alternate)	Office: 206-922-2040
	Emergency: 775-313-4997(cell) 907-766-3346 (H)
Liz Cornejo	Office: 206-922-2040
	Emergency: 778-886-3173 (cell)
Darwin Green	Office: 206-922-2040
	Emergency: 604-789-6043 (cell)
	Office:
	Emergency:
State Oil Pollution Control Agencies Alaska Dept of Environmental Conservation (ADEC) Bureau of Land Management (BLM) - Glennallen	800-478-9300, 907-428-7200, 907-822-3217
Other State, Federal, and Local Agencies EPA Juneau, Alaska and the EPA Alaska EPA Operations Office EPA National Response Center	907-271-5083 800-424-8802; 202-267-2675
Local Fire Department Klehini Valley Fire Dept	907-767-5550
Local Police Department Haines Police Dept - Dispatch	907-766-2121
Hospital Haines Health Clinic	907-766-6300
Other Contact References (e.g., downstream water intakes or neighboring facilities)	
Porcupine Creek Mine (Fred Hurt)	701-578-0015
Southeast Road Builders Inc. (Roger Schnabel) [part. owner of Big Nugget Mine/Camp]	907-766-2833

7. NRC Notification Procedure (§112.7(a)(4) and (a)(5)):

Table G-9 NRC Notification Procedure	
In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information identified in Attachment 4 will be provided to the National Response Center immediately following identification of a discharge to navigable waters or adjoining shorelines [See Discharge Notification Form in Attachment 4]: [§112.7(a)(4)]	X <input type="checkbox"/>
<ul style="list-style-type: none"> • The exact address or location and phone number of the facility; • Date and time of the discharge; • Type of material discharged; • Estimate of the total quantity discharged; • Estimate of the quantity discharged to navigable waters; • Source of the discharge; • Description of all affected media; • Cause of the discharge; • Any damages or injuries caused by the discharge; • Actions being used to stop, remove, and mitigate the effects of the discharge; • Whether an evacuation may be needed; and • Names of individuals and/or organizations who have also been contacted. 	

8. SPCC Spill Reporting Requirements (Report within 60 days) (§112.4):

Submit information to the EPA Regional Administrator (RA) and the appropriate agency or agencies in charge of oil pollution control activities in the State in which the facility is located within 60 days from one of the following discharge events:

- A single discharge of more than 1,000 U.S. gallons of oil to navigable waters or adjoining shorelines or
- Two discharges to navigable waters or adjoining shorelines each more than 42 U.S. gallons of oil occurring within any twelve month period

You must submit the following information to the RA:

- (1) Name of the facility;
- (2) Your name;
- (3) Location of the facility;
- (4) Maximum storage or handling capacity of the facility and normal daily throughput;
- (5) Corrective action and countermeasures you have taken, including a description of equipment repairs and replacements;
- (6) An adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary;
- (7) The cause of the reportable discharge, including a failure analysis of the system or subsystem in which the failure occurred; and
- (8) Additional preventive measures you have taken or contemplated to minimize the possibility of recurrence
- (9) Such other information as the Regional Administrator may reasonably require pertinent to the Plan or discharge

* * * * *

**NOTE: Complete one of the following sections (A, B or C)
as appropriate for the facility type.**

A. Onshore Facilities (excluding production) (§§112.8(b) through (d), 112.12(b) through (d)):

The owner or operator must meet the general rule requirements as well as requirements under this section. Note that not all provisions may be applicable to all owners/operators. For example, a facility may not maintain completely buried metallic storage tanks installed after January 10, 1974, and thus would not have to abide by requirements in §§112.8(c)(4) and 112.12(c)(4), listed below. **In cases where a provision is not applicable, write "N/A".**

Table G-10 General Rule Requirements for Onshore Facilities		N/A
Drainage from diked storage areas is restrained by valves to prevent a discharge into the drainage system or facility effluent treatment system, except where facility systems are designed to control such discharge. Diked areas may be emptied by pumps or ejectors that must be manually activated after inspecting the condition of the accumulation to ensure no oil will be discharged. [§§112.8(b)(1) and 112.12(b)(1)]	X <input type="checkbox"/>	<input type="checkbox"/>
Valves of manual, open-and-closed design are used for the drainage of diked areas. [§§112.8(b)(2) and 112.12(b)(2)]	<input type="checkbox"/>	X <input type="checkbox"/>
The containers at the facility are compatible with materials stored and conditions of storage such as pressure and temperature. [§§112.8(c)(1) and 112.12(c)(1)]	X <input type="checkbox"/>	<input type="checkbox"/>
Secondary containment for the bulk storage containers (including mobile/portable oil storage containers) holds the capacity of the largest container plus additional capacity to contain precipitation. Mobile or portable oil storage containers are positioned to prevent a discharge as described in §112.1(b). [§112.6(a)(3)(ii)]	X <input type="checkbox"/>	<input type="checkbox"/>
If uncontaminated rainwater from diked areas drains into a storm drain or open watercourse the following procedures will be implemented at the facility: [§§112.8(c)(3) and 112.12(c)(3)]		
• Bypass valve is normally sealed closed	<input type="checkbox"/>	X <input type="checkbox"/>
• Retained rainwater is inspected to ensure that its presence will not cause a discharge to navigable waters or adjoining shorelines	X <input type="checkbox"/>	<input type="checkbox"/>
• Bypass valve is opened and resealed under responsible supervision	<input type="checkbox"/>	X <input type="checkbox"/>
• Adequate records of drainage are kept [See Dike Drainage Log in Attachment 3.3]	X <input type="checkbox"/>	<input type="checkbox"/>
For completely buried metallic tanks installed on or after January 10, 1974 at this facility [§§112.8(c)(4) and 112.12(c)(4)]:		
• Tanks have corrosion protection with coatings or cathodic protection compatible with local soil conditions.	<input type="checkbox"/>	X <input type="checkbox"/>
• Regular leak testing is conducted.	<input type="checkbox"/>	X <input type="checkbox"/>
For partially buried or bunkered metallic tanks [§112.8(c)(5) and §112.12(c)(5)]:		
• Tanks have corrosion protection with coatings or cathodic protection compatible with local soil conditions.	<input type="checkbox"/>	X <input type="checkbox"/>
Each aboveground bulk container is tested or inspected for integrity on a regular schedule and whenever material repairs are made. Scope and frequency of the inspections and inspector qualifications are in accordance with industry standards. Container supports and foundations are regularly inspected. [See Inspection Log and Schedule and Bulk Storage Container Inspection Schedule in Attachments 3.1 and 3.2] [§112.8(c)(6) and §112.12(c)(6)(i)]	X <input type="checkbox"/>	<input type="checkbox"/>
Outsides of bulk storage containers are frequently inspected for signs of deterioration, discharges, or accumulation of oil inside diked areas. [See Inspection Log and Schedule in Attachment 3.1] [§§112.8(c)(6) and 112.12(c)(6)]	X <input type="checkbox"/>	<input type="checkbox"/>
For bulk storage containers that are subject to 21 CFR part 110 which are shop-fabricated, constructed of austenitic stainless steel, elevated and have no external insulation, formal visual inspection is conducted on a regular schedule. Appropriate qualifications for personnel performing tests and inspections are documented. [See Inspection Log and Schedule and Bulk Storage Container Inspection Schedule in Attachments 3.1 and 3.2] [§112.12(c)(6)(ii)]	<input type="checkbox"/>	X <input type="checkbox"/>

Table G-10 General Rule Requirements for Onshore Facilities**N/A**

Each container is provided with a system or documented procedure to prevent overfills for the container. Describe:

X ☐☐

Each tank is equipped with a gauge to prevent overfilling.

Tank truck diesel (#1) and Jet-A delivery procedures:

- 1) Manually gauge receiving tank to confirm liquid level in tank and quantity to be delivered to prevent tank overfill; reconcile with inventory records and ATG, as applicable. Tanks will not be filled beyond 90% of their capacity.
- 2) Set parking brake and use chock blocks (if available) to prevent movement; inspect fittings and fueling hose for damage or leakage before starting fuel transfer operation. The fuel delivery person makes all hook-ups.
- 3) Place drip buckets or 'duck ponds' under valve-hose fitting connections, and also have a few absorbents within arm's reach.
- 4) Prior to any fuel unloading, the delivery person and the monitoring camp worker will confirm the location and good condition of spill kits.
- 5) If lock-out safety nozzles are not in use, the delivery person will not energize the delivery pump until the hose and nozzle have been positioned and secured at the receiving tank.
- 6) An authorized worker will monitor the delivery, remain attentive and observe the entire fuel delivery process. He or she will be prepared to stop the flow of fuel from the truck to the tank at any time, and respond to any unusual condition, leak, or spill which may occur during delivery. During diesel and Jet-A unloading, the delivery person and the camp worker will monitor the liquid levels in the receiving tanks to prevent tank over-fill.
- 7) Following complete delivery, the fuel delivery person is responsible for disconnecting all hook-ups. The delivery person will secure all valves on the tank truck before truck departure and inspect for leakage.
- 8) Record accurate readings for product in tank after fuel delivery, verify the amount of fuel received and make sure fill ports are properly secured.
- 9) If a fuel spill occurs, the spill kit will be used to contain the spill. Appropriate spill kits are located immediately adjacent to the containment. Diesel and Jet-A are delivered by the same tanker and equipment and in an over-fill situation the estimated maximum spill for each is approximately 11 gallons (a 30-foot 3-inch diameter delivery hose holds about 11 gallons).

Jet-A dispensing procedures:

1. Jet-A is only dispensed by the pilot or a helicopter mechanic,
- 2) at the tank, the nozzle is removed and held upright, and the pump is energized,
- 3) pilot carefully walks the nozzle/hose to the fuel port on the helicopter, removes cap, inserts nozzle into port and secures the nozzle via a safety tether (wire),
- 4) pilot manually dispenses the appropriate volume of fuel,
- 5) nozzle is "up-ended" in the fill port to drain out any residual fuel,
- 6) nozzle is righted and the fuel cap is replaced
- 7) while nozzle is held upright, pilot returns main tank, de-energizes the pump, and places nozzle in cradle,
- 8) Absorbents are on hand for any fuel drips, and a spill kit is immediately available for anything larger

Diesel (#2) dispensing procedures:

1. Diesel is dispensed only by authorized workers; receiving tank checked, fuel cap removed, fuel level is checked
2. Nozzle is removed and held upright, nozzle & hose are moved to the fill port of the receiving container
3. Nozzle is placed in fill port and secured in place; pump is energized; appropriate volume of fuel is dispensed manually, fuel levels are closely watched during the process
4. pump is de-energized; any residual fuel in the nozzle spout is drained into the receiving tank; nozzle is removed and held upright; nozzle/hose are moved back to main tank; nozzle is returned to covered cradle above the tank
5. fuel cap on receiving tank is replaced
6. absorbents are kept close at hand for any fuel drips; the main spill kit is immediately available for anything larger

Table G-10 General Rule Requirements for Onshore Facilities		N/A
Liquid level sensing devices are regularly tested to ensure proper operation [See Inspection Log and Schedule in Attachment 3.1]. [§112.6(a)(3)(iii)] NA	<input type="checkbox"/>	X <input type="checkbox"/>
Visible discharges which result in a loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts are promptly corrected and oil in diked areas is promptly removed. [§§112.8(c)(10) and 112.12(c)(10)]	X <input type="checkbox"/>	<input type="checkbox"/>
Aboveground valves, piping, and appurtenances such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces are inspected regularly. [See Inspection Log and Schedule in Attachment 3.1] [§§112.8(d)(4) and 112.12(d)(4)]	<input type="checkbox"/>	X <input type="checkbox"/>
Integrity and leak testing are conducted on buried piping at the time of installation, modification, construction, relocation, or replacement. [See Inspection Log and Schedule in Attachment 3.1] [§§112.8(d)(4) and 112.12(d)(4)]	<input type="checkbox"/>	X <input type="checkbox"/>

B. Onshore Oil Production Facilities (excluding drilling and workover facilities) (§112.9(b), (c), and (d)): NA

The owner or operator must meet the general rule requirements as well as the requirements under this section. Note that not all provisions may be applicable to all owners/operators. In cases where a provision is not applicable, write "N/A".

Table G-11 General Rule Requirements for Onshore Oil Production Facilities		N/A
At tank batteries, separation and treating areas, drainage is closed and sealed except when draining uncontaminated rainwater. Accumulated oil on the rainwater is returned to storage or disposed of in accordance with legally approved methods. [§112.9(b)(1)]	<input type="checkbox"/>	<input type="checkbox"/>
Prior to drainage, diked areas are inspected and [§112.9(b)(1)]:	<input type="checkbox"/>	<input type="checkbox"/>
• Retained rainwater is inspected to ensure that its presence will not cause a discharge to navigable waters	<input type="checkbox"/>	<input type="checkbox"/>
• Bypass valve is opened and resealed under responsible supervision	<input type="checkbox"/>	<input type="checkbox"/>
• Adequate records of drainage are kept [See Dike Drainage Log in Attachment 3.3]	<input type="checkbox"/>	<input type="checkbox"/>
Field drainage systems and oil traps, sumps, or skimmers are inspected at regularly scheduled intervals for oil, and accumulations of oil are promptly removed [See Inspection Log and Schedule in Attachment 3.1] [§112.9(b)(2)]	<input type="checkbox"/>	<input type="checkbox"/>
The containers used at this facility are compatible with materials stored and conditions of storage. [§112.9(c)(1)]	<input type="checkbox"/>	<input type="checkbox"/>
All tank battery, separation, and treating facility installations (except for flow-through process vessels) are constructed with a capacity to hold the largest single container plus additional capacity to contain rainfall. Drainage from undiked areas is safely confined in a catchment basin or holding pond. [§112.9(c)(2)]	<input type="checkbox"/>	<input type="checkbox"/>
Except for flow-through process vessels, containers that are on or above the surface of the ground, including foundations and supports, are visually inspected for deterioration and maintenance needs on a regular schedule. [See Inspection Log and Schedule in Attachment 3.1] [§112.9(c)(3)]	<input type="checkbox"/>	<input type="checkbox"/>
New and old tank batteries at this facility are engineered/updated in accordance with good engineering practices to prevent discharges including at least one of the following:	<input type="checkbox"/>	<input type="checkbox"/>
i. adequate container capacity to prevent overflow if regular pumping/gauging is delayed;		
ii. overflow equalizing lines between containers so that a full container can overflow to an adjacent container;		
iii. vacuum protection to prevent container collapse; or		
iv. high level sensors to generate and transmit an alarm to the computer where the facility is subject to a computer production control system. [§112.9(c)(4)]		
Flow-through process vessels and associated components are:	<input type="checkbox"/>	<input type="checkbox"/>
• Are constructed with a capacity to hold the largest single container plus additional capacity to contain rainfall. Drainage from un-diked areas is safely confined in a catchment basin or holding pond; [§112.9(c)(2)] and	<input type="checkbox"/>	<input type="checkbox"/>
• That are on or above the surface of the ground, including foundations and supports, are visually inspected for deterioration and maintenance needs on a regular schedule. [See Inspection Log and Schedule in Attachment 3.1] [§112.9(c)(3)]	<input type="checkbox"/>	<input type="checkbox"/>
Or		
• Visually inspected and/or tested periodically and on a regular schedule for leaks, corrosion, or other conditions that could lead to a discharge to navigable waters; and	<input type="checkbox"/>	<input type="checkbox"/>
• Corrective action or repairs are applied to flow-through process vessels and any associated components as indicated by regularly scheduled visual inspections, tests, or evidence of an oil discharge; and	<input type="checkbox"/>	<input type="checkbox"/>
• Any accumulations of oil discharges associated with flow-through process vessels are promptly removed; and	<input type="checkbox"/>	<input type="checkbox"/>
• Flow-through process vessels are provided with a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation within six months of a discharge from flow-through process vessels of more than 1,000 U.S. gallons of oil in a single discharge as described in §112.1(b), or a discharge more than 42 U.S. gallons of oil in each of two discharges as described in §112.1(b) within any twelve month period. [§112.9(c)(5)] (Leave blank until such time that this provision is applicable.)	<input type="checkbox"/>	<input type="checkbox"/>

Table G-11 General Rule Requirements for Onshore Oil Production Facilities		N/A
All aboveground valves and piping associated with transfer operations are inspected periodically and upon a regular schedule. The general condition of flange joints, valve glands and bodies, drip pans, pipe supports, pumping well polish rod stuffing boxes, bleeder and gauge valves, and other such items are included in the inspection. [See Inspection Log and Schedule in Attachment 3.1] <i>[§112.9(d)(1)]</i>	<input type="checkbox"/>	<input type="checkbox"/>
An oil spill contingency plan and written commitment of resources are provided for flowlines and intra-facility gathering lines [See Oil Spill Contingency Plan and Checklist in Attachment 2 and Inspection Log and Schedule in Attachment 3.1] <i>[§112.9(d)(3)]</i> or Appropriate secondary containment and/or diversionary structures or equipment is provided for flowlines and intra-facility gathering lines to prevent a discharge to navigable waters or adjoining shorelines. The entire secondary containment system, including walls and floor, is capable of containing oil and is constructed so that any discharge from the pipe, will not escape the containment system before cleanup occurs.	<input type="checkbox"/>	<input type="checkbox"/>
A flowline/intra-facility gathering line maintenance program to prevent discharges from each flowline has been established at this facility. The maintenance program addresses each of the following: <ul style="list-style-type: none"> Flowlines and intra-facility gathering lines and associated valves and equipment are compatible with the type of production fluids, their potential corrosivity, volume, and pressure, and other conditions expected in the operational environment; Flowlines, intra-facility gathering lines and associated appurtenances are visually inspected and/or tested on a periodic and regular schedule for leaks, oil discharges, corrosion, or other conditions that could lead to a discharge as described in §112.1(b). The frequency and type of testing allows for the implementation of a contingency plan as described under part 109 of this chapter. Corrective action and repairs to any flowlines and intra-facility gathering lines and associated appurtenances as indicated by regularly scheduled visual inspections, tests, or evidence of a discharge. Accumulations of oil discharges associated with flowlines, intra-facility gathering lines, and associated appurtenances are promptly removed. <i>[§112.9(d)(4)]</i> 	<input type="checkbox"/>	<input type="checkbox"/>
The following is a description of the flowline/intra-facility gathering line maintenance program implemented at this facility:	<input type="checkbox"/>	<input type="checkbox"/>

C. Onshore Oil Drilling and Workover Facilities (§112.10(b), (c) and (d)): NA

The owner or operator must meet the general rule requirements as well as the requirements under this section.

Table G-12 General Rule Requirements for Onshore Oil Drilling and Workover Facilities	
Mobile drilling or worker equipment is positioned or located to prevent discharge as described in §112.1(b). <i>[§112.10(b)]</i>	<input type="checkbox"/>
Catchment basins or diversion structures are provided to intercept and contain discharges of fuel, crude oil, or oily drilling fluids. <i>[§112.10(c)]</i>	<input type="checkbox"/>
A blowout prevention (BOP) assembly and well control system was installed before drilling below any casing string or during workover operations. <i>[§112.10(d)]</i>	<input type="checkbox"/>
The BOP assembly and well control system is capable of controlling any well-head pressure that may be encountered while the BOP assembly and well control system are on the well. <i>[§112.10(d)]</i>	<input type="checkbox"/>

I have completed a review and evaluation of the SPCC Plan for this facility, and will/will not amend this Plan as a result.

[illegible]

[illegible]

- Flowlines and intra-facility gathering lines at oil production facilities and
- Qualified oil-filled operational equipment which has no secondary containment.

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Table G-15 Checklist of Development and Implementation Criteria for State, Local and Regional Oil Removal Contingency Plans (§109.5)^a

☐

- (1) The identification of critical water use areas to facilitate the reporting of and response to oil discharges.
- (2) A current list of names, telephone numbers and addresses of the responsible persons (with alternates) and organizations to be notified when an oil discharge is discovered.
- (3) Provisions for access to a reliable communications system for timely notification of an oil discharge, and the capability of interconnection with the communications systems established under related oil removal contingency plans, particularly State and National plans (e.g., NCP).
- (4) An established, prearranged procedure for requesting assistance during a major disaster or when the situation exceeds the response capability of the State, local or regional authority.

- (1) The identification and inventory of applicable equipment, materials and supplies which are available locally and regionally.
- (2) An estimate of the equipment, materials and supplies which would be required to remove the maximum oil discharge to be anticipated.
- (3) Development of agreements and arrangements in advance of an oil discharge for the acquisition of equipment, materials and supplies to be used in responding to such a discharge.

- (1) Specification of an oil discharge response operating team consisting of trained, prepared and available operating personnel.
- (2) Predesignation of a properly qualified oil discharge response coordinator who is charged with the responsibility and delegated commensurate authority for directing and coordinating response operations and who knows how to request assistance from Federal authorities operating under existing national and regional contingency plans.
- (3) A preplanned location for an oil discharge response operations center and a reliable communications system for directing the coordinated overall response operations.
- (4) Provisions for varying degrees of response effort depending on the severity of the oil discharge.
- (5) Specification of the order of priority in which the various water uses are to be protected where more than one water use may be adversely affected as a result of an oil discharge and where response operations may not be adequate to protect all uses.
- (6) Specific and well defined procedures to facilitate recovery of damages and enforcement measures as provided for by State and local statutes and ordinances.

Tier I Qualified Facility SPCC Plan

ATTACHMENT 3 – Inspections, Dike Drainage and Personnel Training Logs

ATTACHMENT 3.1 – Inspection Log and Schedule

Table G-16 Inspection Log and Schedule

This log is intended to document compliance with §§112.6(a)(3)(iii), 112.8(c)(6), 112.8(d)(4), 112.9(b)(2), 112.9(c)(3), 112.9(d)(1), 112.9(d)(4), 112.12.(c)(6), and 112.12(d)(4), as applicable.

Date of Inspection	Container / Piping / Equipment	Describe Scope (or cite Industry Standard)	Observations	Name/ Signature of Inspector	Records maintained separately ^a
	AST's - one 5,000G Diesel No 2 - one 3,000G Jet A - one 1,000G Diesel No 2 - 70G diesel fly tanks x 10	monthly visual inspections per STI SP001 standard			<input type="checkbox"/>
	Containments - Diesel No 2 and Jet-A and fly tank containment	weekly and after heavy rainfall			<input type="checkbox"/>
	Dispensers	weekly visual inspections of fill nozzles, hoses, filter housings, fittings, couplings			<input type="checkbox"/>
	Spill Kits	monthly inspections and inventory check (for re-supply and replacement)			<input type="checkbox"/>
	Fire Extinguishers	monthly inspections; pressure gauge checked; certification tag checked; pin and handle checked			<input type="checkbox"/>

^a Indicate in the table above if records of facility inspections are maintained separately at this facility.

ATTACHMENT 3.2 – Bulk Storage Container Inspection Schedule – onshore facilities (excluding production):

To comply with integrity inspection requirement for bulk storage containers, inspect/test each shop-built aboveground bulk storage container on a regular schedule in accordance with a recognized container inspection standard based on the minimum requirements in the following table.

Table G-17 Bulk Storage Container Inspection Schedule	
Container Size and Design Specification	Inspection requirement
Portable containers (including drums, totes, and intermodal bulk containers (IBC)) 10 x 70 gal diesel steel fly tanks	Monthly inspections for signs of deterioration, discharges or accumulation of oil inside diked areas
55 to 1,100 gallons with sized secondary containment: NA	NA
1,101 to 5,000 gallons with sized secondary containment and a means of leak detection ^a NA	
1,101 to 5,000 gallons with sized secondary containment and no method of leak detection ^a one 5,000gal Diesel No 2 one 3,000gal Jet A one 1,000gal Diesel No 2	Monthly inspections for signs of deterioration, discharges or accumulation of oil inside diked areas, plus any annual inspection elements and other specific integrity tests that may be required per industry inspection standards

^a Examples of leak detection include, but are not limited to, double-walled tanks and elevated containers where a leak can be visually identified.

ATTACHMENT 3.3 – Containment Pump Out Log

		Table G-18 Dike Drainage Log					
Date	Containment identity, type, and location	intake hose properly placed & secured	Rainwater inspected to be sure no oil (or sheen) is visible	discharge water monitored for any evidence of fuel	Pump out activity supervised	Observations	Signature of Inspector
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

ATTACHMENT 3.4 – Oil-handling Personnel Training and Briefing Log

Table G-19 Oil-Handling Personnel Training and Briefing Log		
Date	Description / Scope	Attendees

ATTACHMENT 4 – Discharge Notification Form

In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information will be provided to the National Response Center **[also see the notification information provided in Section 7 of the Plan]**:

Table G-20 Information provided to the National Response Center in the Event of a Discharge			
Discharge/Discovery Date		Time	
Facility Name			
Facility Location (Address/Lat-Long/Section Township Range)			
Name of reporting individual		Telephone #	
Type of material discharged		Estimated total quantity discharged	Gallons/Barrels
Source of the discharge		Media affected	<input type="checkbox"/> Soil
			<input type="checkbox"/> Water (specify)
			<input type="checkbox"/> Other (specify)
Actions taken			
Damage or injuries	<input type="checkbox"/> No <input type="checkbox"/> Yes (specify)	Evacuation needed?	<input type="checkbox"/> No <input type="checkbox"/> Yes (specify)
Organizations and individuals contacted	<input type="checkbox"/> National Response Center 800-424-8802 Time		
	<input type="checkbox"/> Cleanup contractor (Specify) Time		
	<input type="checkbox"/> Facility personnel (Specify) Time		
	<input type="checkbox"/> State Agency (Specify) Time		
	<input type="checkbox"/> Other (Specify) Time		

Appendix C RECLAMATION PLANS FOR TEMPORARY AND PERMANENT CLOSURE

TEMPORARY CLOSURE PLAN

There may be some situations where Constantine suspends its activities proposed under this Plan of Operations for periods longer than the typical seasonal interruptions. Under any situation where activities at the site will cease for more than 1 year and up to 3 years Constantine would put the site on Temporary Closure status and continue to perform all maintenance, monitoring and reporting tasks that are necessary to protect public health and the environment during the temporary closure as outlined below. Should Constantine decide to go into Temporary Closure status it will notify ADNR and the Trust with 15 days of making that decision. The Temporary Closure Plan includes the following key components:

- Construction of a barrier to discourage vehicular use of the access road on Trust lands. Barrier will be constructed within 30 days of notifying ADNR and the Trust of the decision to go to care and maintenance status, or by June 15 if that decision is made during the months of October to April. Constantine has already constructed a lockable steel gate at the State/BLM boundary on the Glacier Creek Road and plans to construct a similar gate the Trust/BLM boundary at or before closure. This gate is preferred over the berm option because it would continue to allow the Trust to limit access to the site while allowing access to themselves or other interested parties.
- Compliance with the SWPPP, including visual monitoring after summer storm events and maintenance of storm water BMP's during the snow free months,
- Compliance with the SPCC Plan including monthly visual monitoring and management of fuel storage facility on the Glacier Creek access road, including maintenance of secondary containment vessels (none of these are on State or Trust lands). This monitoring requirement will not apply whenever all fuel tanks are empty
- Visual monitoring of site roads, laydown areas and portal pad area during snow-free months for conditions that may warrant repair or other response.
- Provide an electronic report for all monitoring by the 15th of the month for the preceding month.

Estimated Temporary Closure costs are described below.

Temporary Closure - Cost Estimate Summary						
Direct Costs						
One Time Activities	Recurring Activities	Unit Costs	Year 1 Cost	Year 2 Cost	Year 3 Cost	Cummulative 3-Yr. Cost
Direct Costs						
Site Clean-up, Preparation			\$12,180			\$12,180
Construct Access Road Barrier			\$6,960			\$6,960
	Monthly Site Inspection	\$790	\$9,720	\$9,720	\$9,720	\$29,160
	Monthly Reporting	\$175	\$2,100	\$2,100	\$2,100	\$6,300
Direct Cost Subtotal (3-Years)			\$30,960	\$11,820	\$11,820	\$54,600
Indirect Costs						
	Contractor Profit (6% of Direct Costs)					\$3,276
	Contractor Overhead (4% of Direct Costs)					\$2,184
	Performance and Payment Bonds (2.5% of Direct Costs)					\$1,365
	Liability Insurance (1.5% of Labor Costs)					\$174
	Contract Administration (5% of Direct Costs)					\$2,730
	Engineering Redesign (3% of Direct Costs)					\$1,638
	Scope Contingency (6% of Direct Costs)					\$3,276
	Bid Contingency (4% of Direct Costs)					\$2,184
Indirect Costs Subtotal (3-Years)						\$16,827
Total Temporary Closure Costs	Duration 3 Years					\$71,427

Site Cleanup and Preparation Costs						
Item	# people	\$/day	# days	\$/unit	#units	total
Field Lead	1	\$ 300.00	5			\$ 1,500.00
local labor	1	\$ 250.00	3			\$ 750.00
Incidentals		\$ 50.00	5			\$ 250.00
Equipment Rental (loaders) to stablize areas			3	\$ 1,925.00	1	\$ 5,775.00
Mobilization				\$ 3,080.00	1	\$ 3,080.00
Pickup Rental + fuel			5	\$ 165.00	1	\$ 825.00
		TOTAL				\$ 12,180.00
Three day duration when laborers are cleaning up the site and have an excavator to dress road as needed						

Road Barrier Construction Costs						
Item	# people	/day	# days	/unit	#units	total
Operators	1	\$ 340.00	2			\$ 680.00
local assistant (assume 0.5 day for safety & prep)	1	\$ 275.00	2			\$ 550.00
Equipment Rental (Cat, loaders, welder, etc.)			2	\$1,200.00	1	\$ 2,400.00
Pickup Rental + fuel			2	\$ 165.00	1	\$ 330.00
Miscellaneous material, rebar, cement, plate steel						\$ 3,000.00
		TOTAL				\$ 6,960.00

Main activity is fabricating and installing a gate at the BLM/MHT boundary to keep vehicles out of the MHT lands. There is an option of trenching the road instead but Constantine has successfully installed a gate at the State/BLM boundary and a gate allows MHT to continue to have access to the land while discouraging others to enter.

Monthly Site Inspection Costs					
	\$/day	# days	\$/unit	#units	total
rental truck +fuel	\$ 165.00	1			\$ 165.00
per diem	\$ 100.00	1			\$ 100.00
misc. (radio - light batteries, gloves, etc.)			\$ 25.00	1	\$ 25.00
Labor costs	\$ 250.00	2			\$ 500.00
	TOTAL PER TRIP				\$ 790.00
	TOTAL FOR TWELVE TRIPS (1-Yr.)				\$ 9,480.00
Assumes team of two from Haines, during snow free months and when access road is passable					

Monthly Reporting Costs					
	/day	# days	/unit	#units	total
professional fees(consultant)					
lead	\$ 300.00	0.5			\$ 150.00
assistant	\$ 250.00	0.1			\$ 25.00
	TOTAL PER REPORT				\$ 175.00
	TOTAL FOR TWELVE REPORTS (1 yr)				\$ 2,100.00

PERMANENT CLOSURE PLAN

If Constantine decides to cease activities at the site permanently, it will perform the activities described below:

- Construct a barrier at the Trust land boundary that discourages vehicular traffic on the access road on Trust lands. Constantine has already constructed a lockable steel gate at the State/BLM boundary on the Glacier Creek Road and plans to construct a similar gate at the Trust/BLM boundary at or before closure. This gate is preferred over the berm option because it would continue to allow the Trust to limit access to the site while allowing access to themselves or other interested parties.
- Constantine will be leaving the access road on Trust lands in-place at closure per an understanding with the Trust. It is not known how long the road might remain useable or stable because of the steep terrain and generally unconsolidated nature of the material comprising the hillsides in the area. Constantine is not making any representations that the road will remain useable following their departure at closure.
- Constantine will reclaim the settling ponds by burying the liners in-place, filling in the depressions and recontouring the land surface to discourage ponding. Material required for the work will be repurposed from the starter avalanche berm or another borrow source. The cost estimate includes a CAT, excavator and haul truck for this purpose. The final surface will be reseeded to provide short-term stability from erosion and encourage long-term re-establishment of native plant species. Constantine will consult with the Alaska Plant Materials Research Center to identify the appropriate seed mix to use for initial revegetation on disturbed areas. There is an additional approval process for reclaiming the ponds if the pond embankment(s) qualifies as a jurisdictional dam (s). If it does then the ADNR dam safety unit has a role in issuing a Certificate of Approval to Remove a Dam. Constantine will work with ADNR dam safety to ensure that their regulatory requirements are met in the process of reclaiming the settling ponds.
- The LAD trench will be backfilled. During Phase I Constantine only intends to excavate the LAD trench and place the loose material in a pile along the trench so that it can eventually be used to backfill the trench after piping is installed in Phase II. As a result, backfilling the trench at the end of Phase I simply requires using an excavator to pull the loose material from the pile back into the trench and then reseeding the disturbed area.
- The entire site (Trust lands) will be cleared of any loose debris and trash. The road will be dressed, if required, to stabilize BMP's so that it may be passable for some time following closure. Constantine has included up to 3 days of excavator time in the closure cost estimate for final road and facility dressing prior to leaving the site.

Constantine assigned indirect costs at the low end of the scale of State-recommended range of indirect costs owing to the relatively low risk and simplicity of the project at this Phase. Permanent closure costs are described in the following tables:

Permanent Closure- Reclamation Cost Estimate Summary		
Activity		Cost
Direct costs		
	Site Clean-up, Preparation, Reseed	\$20,560
	Reclaim Ponds	\$62,820
	Reclaim LAD Trench	\$11,490
	Construct Road Barrier	\$6,960
	Final Closure Report	\$6,250
	Equipment Mobe and Demobe	\$10,670
Direct Costs Subtotal		\$118,750
Indirect Costs		
	Contractor Profit (6%)	\$7,125
	Contractor Overhead (4%)	\$4,750
	Performance and Payment Bonds (2.5%)	\$2,969
	Liability Insurance (1.5% labor)	\$434
	Contract Administration (5%)	\$5,938
	Engineering Redesign (3%)	\$3,563
	Scope Contingency (6%)	\$7,125
	Bid Contingency (4%)	\$4,750
Indirect Costs Subtotal		\$36,653
Total Permanent Closure Reclamation Costs		\$155,403

Indirect Cost Table*		
	Range (%)	as a % of
Contractor Profit	6 to 10	total direct
Contractor Overhead	4 to 8	total direct
Performance and Payment Bonds	2.5 to 3.5	total direct
Liability Insurance	1.5	total labor
Contract Administration	5 to 9	total direct
Engineering Redesign	3 to 7	total direct
Scope and Bid Contingency	10 to 20	total direct
*from the Dowl Report (ADNR Large Mine Website)		

Site Prep, Cleanup and Reseed Costs						
Item	# people	\$/day	# days	\$/unit	#units	total
lead (assume 1 day for prep / demob / l	1	\$ 1,100.00	3			\$ 3,300.00
local labor	2	\$ 275.00	13			\$ 7,150.00
meals	2	\$ 20.00	13			\$ 520.00
seed mix (hand cast)				\$ 10.00	200	\$ 2,000.00
Fuel Transfer Truck			3	\$ 165.00	1	\$ 495.00
Equipment Rental (CAT 320 excavator)			3	\$ 2,035.00	1	\$ 6,105.00
Pickup Rental + fuel			3	\$ 165.00	2	\$ 990.00
TOTAL						\$ 20,560.00
Main activity is excavator for 3 days to dress road, stabilize ditches prior to leaving the site. Two local laborers are available for 13 days to pickup trash and reseed the pond and LAD areas after they are reclaimed.						

Pond Reclamation Costs						
Item	# people	\$/day	# days	\$/unit	#units	total
lead	1	\$ 1,100.00	7			\$ 7,700.00
meals and accomodations	1	\$ 200.00	7			\$ 1,400.00
CAT D6			7	\$ 1,980.00	1	\$ 13,860.00
Excavator CAT 320			7	\$ 2,035.00	1	\$ 14,245.00
Fuel Transfer Truck			7	\$ 165.00	1	\$ 1,155.00
Truck - articulated			7	\$ 1,450.00	1	\$ 10,150.00
Pickup Rental			7	\$ 165.00	2	\$ 2,310.00
Contingency to develop application for Certificate to Remove Dam						\$ 12,000.00
			TOTAL			\$ 62,820.00

Main activity is placing fill in ponds using an excavator to obtain fill (from waste rock dump) and truck to haul to pond sites and then spreading with the cat. Final reseed is included on the Site prep, cleanup and reseed sheet. Two pickups are entered for 13-day duration for laborers and lead to use as needed.

LAD Reclamation Costs						
Item	# people	\$/day	# days	\$/unit	#units	total
lead	1	\$ 1,100.00	3			\$ 3,300.00
meals and accomodations	1	\$ 200.00	3			\$ 600.00
Excavator CAT 320			3	\$ 2,035.00	1	\$ 6,105.00
Fuel Transfer Truck			3	\$ 165.00	1	\$ 495.00
Pickup Rental			3	\$ 165.00	2	\$ 990.00
			TOTAL			\$ 11,490.00

Main activity is using the excavator to pick up and place the fill back into the trench. Three days are allocated for this work. The assumption is that original material from the trench was simply placed on the uphill side of the trench in Pase I and so reclamation consits of simply placing it back in the trench. Reseeding is included in the "site prep, cleanup" worksheet.

Road Barrier Construction Costs						
Item	# people	/day	# days	/unit	#units	total
Operators	1	\$ 340.00	2			\$ 680.00
local assistant (assume 0.5 day for safety & prep)	1	\$ 275.00	2			\$ 550.00
Equipment Rental (Cat, loaders, welder, etc.)			2	\$1,200.00	1	\$ 2,400.00
Pickup Rental + fuel			2	\$ 165.00	1	\$ 330.00
Miscellaneous material, rebar, cement, plate steel						\$ 3,000.00
		TOTAL				\$ 6,960.00

Main activity is fabricating and installing a gate at the BLM/MHT boundary to keep vehicles out of the MHT lands. There is an option of trenching the road instead but Constantine has successfully installed a gate at the State/BLM boundary and a gate allows MHT to continue to have access to the land while discouraging others to enter.

Equipment Mobe and Demobe Costs		
		RT mobe/demobe
Dozer CAT D6		\$3,300
Excavator CAT 320		\$3,300
Truck 25 ton (articulated)		\$3,080
Invasive Species washdown		\$990
Total costs		\$10,670

Main activity is mobilizing equipment from Haines (by road) for the 13 days to complete the site reclamation.

Final Reclamation Report Costs			
	\$/day	# days	total
lead author	\$ 1,100.00	5	\$ 5,500.00
graphical assistant	\$ 250.00	3	\$ 750.00
	TOTAL		\$ 6,250.00

Main activity is developing a final report that describes the final reclamation activities with photos and documentation to show the final site configuration and the steps that were taken to get it there.

Labor costs (excerpted from the other worksheets)		
Site Prep		\$10,450
Reclaim Ponds		\$7,700
Reclaim LAD		\$3,300
Construct Road Barrier		\$1,230
Closure Report		\$6,250
Total		\$28,930

2017 Equipment Cost Quote from Southeast Road Builders

Mobilization Rates:		unit cost (one way)	
Excavator	320 Size - Cat	\$1,500 /each	(from existing location)
	335 Size - Cat	\$1,700 each	
	345 Size - Cat	\$2,200 each	
Loader		\$1,400 /each	"
Dozer	D-6	\$1,500 /each	"
Dozer	D-8T	\$2,000 /each	"
Truck	Off-Highway	\$1,400 /each	"
Truck	Other	\$300 /each	"
563 Cat Roller/Compactor		\$1,250 /each	"
12M Cat Grader		\$850 /each	"
Drill		\$1,200 /each	"
on-site vehicle - Dedicated		\$250 /each	"
hydroseeder		\$450 /each	"
SWPPP Container and Storage Container		\$500 /each	"

Mobilization stops at point where invasive specie clear limits begin

Equipment Rates:			
Excavator	Model Caterpillar 335	\$1,950 /day-\$175*	Incl operator/fuel/preventative maintenance
Excavator	Model Caterpillar 320	\$1,850 /day-\$175*	Incl operator/fuel/preventative maintenance
Excavator	Model Caterpillar 312	\$1,750 /day-\$175*	Incl operator/fuel/preventative maintenance
Loader	Model Caterpillar 980 C	\$1,800 /day-\$150*	Incl operator/fuel/preventative maintenance
Dozer	Caterpillar D8T	\$2,450 /day-\$200*	Incl operator/fuel/preventative maintenance
Dozer	Caterpillar D6	\$1,800 /day-\$125*	Incl operator/fuel/preventative maintenance
Truck	25/30 ton (Articulated)	\$1,450 /day-\$125	Incl operator/fuel/preventative maintenance
Compactor	Caterpillar 563	\$1,800 /day-\$125	Incl operator/fuel/preventative maintenance
Grader	Caterpillar 12 M	\$1,950 /day-\$150	Incl operator/fuel/preventative maintenance
Drill	Komatsu - John Henry	\$1,600 /day-\$100*	Does not include drill steel/bits/strikers/couplers /caps/powder/primers/powderman
Fuel transfers/Truck use for fueling		\$150 /day	
CrewTransport Vehicles		\$150 /day	Dedicated to Project (Staged @ Camp)
Truck/Tractor with lowboy:		\$200 /hr.-\$150*	Incidental moves
Invasive Specie - washdown/control (#2 Wash)		\$350 /unit	(owner provided system) - SRI can provide
Invasive Specie - Initial Wash-down prior to mob.		\$300 /unit	SRI Provided system - HNS
Service/Maintenance Truck - Dedicated (invasive)		\$200 /day	
Hydroseeder		\$500 /load-\$50*	1100 gallon - 10,000 Sq ft. of coverage - + material cost per below

10% was added to all of these costs for the reclamation cost estimate. Quote includes fuel, operator and maintenance